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TABLE OF CONTENTS

Health Education and Appendicitis Mortality Rate D. B. ARMSTRONG, M.D. 277

Effect of *p*H of the Blood on Haemolysis FELIX SMITH, M.D., and R. WINSTON EVANS ..279

Delay in Diagnosis and Sanatorium Treatment of Phthisis BERTRAM MANN, M.D. ..283

Lymphadenoma and Leukaemia A. WILSON GILL, M.D., and A. J. MCCALL, M.D. 284

Outbreak of Small-pox in Glasgow C. KILLICK MILLARD, M.D. 288

MEDICAL MEMORANDA

Treatment of Influenzal Meningitis with Sulphonamides. N. ARCHER, D.M., and E. SINGER, M.D. 286

GENERAL ARTICLES AND NEWS

Health Education and Venereal Diseases 290

SUBSTITUTE FOR FLOWMETER IN OXYGEN THERAPY 287

BURMA AWARDS 295

THE SERVICES 305

UNIVERSITIES AND COLLEGES 307

MEDICAL NOTES IN PARLIAMENT 305

MEDICAL NEWS 306

REVIEWS

Biochemistry and Morphogenesis ...286

Legal Medicine in South Africa 287

Aviation Medicine 287

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE:

Non-specific Epididymitis 295

Recent Experience of Encephalomyelitis 296

NUTRITION SOCIETY:

Nutrition in Pregnancy 297

OBITUARY

H. W. C. Austen, M.D., L.D.S. 304

James Murray, M.D. 304

H. Lambert Lack, F.R.C.S. 304

Constance Ridout, M.R.C.S. 305

Epidemiology Section.....307

LEADING ARTICLES

Parliament and Beveridge Report....291

Splenopathic Leucopenia.....292

ANNOTATIONS

Infectious Polyneuritis 292

Standardization in Communal Feeding 293

Endobronchial Tuberculosis 294

Food Yeast 294

LETTERS AND ANSWERS

Prophylactic Use of Vitamin K—Prostigmin for Deafness—Temperature-taking in Tuberculosis—Treatment of Intermittent Claudication—Income Tax—*B.M.J.* Lost through Enemy Action 308

CORRESPONDENCE

Scientific Freedom and Social Medicine. Sir JAMES WALTON, F.R.C.S.; J. STAVELY DICK, M.B.; J. H. SEQUEIRA, M.D. 298

The B.M.A. and the Beveridge Report. H. W. BLAND, M.B.; W. G. MURRAY-BROWNE, M.B. ...299

SUPPLEMENT

Future of Medicine in Great Britain *31*

TOWELS FOR DOCTORS *32*

BRANCH MEETINGS TO BE HELD *32*

POSTGRADUATE NEWS *32*

CORRESPONDENCE—*Contd.*

War Neuroses. Sir ARTHUR HURST, D.M. 299

Abortus Fever. J. L. HORNE, M.D....299

Weil's Disease. J. C. BROOM, M.D. 300

A Member Resigns. C. G. LEAROYD, M.R.C.S.; F. M. PURCELL, M.D. ...300

Foot-and-Mouth Disease in Man. K. I. E. MACLEOD, M.B. 300

Rushcliffe Committee's Report. ESTHER CARLING, M.D. 300

Dietetics of Pregnancy. DOYNE BELL, D.M.; W. T. RUSSELL and W. J. MARTIN, Ph.D. 301

Ligature of Innominate Artery. DONALD MCGAVIN, F.R.C.S. 301

Pleurisy and Pleural Effusion. E. MONTUSCHI, M.D. 301

Peptic Ulcer a Deficiency Disease? J. J. O'MULLANE, M.B. 302

"Calorie Control" Diabetic Diet. T. H. OLIVER, M.D.; G. KNIGHT, M.D., and J. M. MALINS, M.B. ...302

Anaesthesia for Laryngofissure. T. E. A. STOWELL, F.R.C.S. 302

Coarctation of Aorta. W. B. BILLINGHURST, B.M. 302

Preparation of Hands for Operation. LEON RADCLYFFE 303

Absenteeism in Industry. A. G. EDDISON, M.B. 303

Treatment of Bacillary Dysentery. W. M. PRIEST, M.D. 303

Cardiac Invalidism in Children. A. H. G. BURTON, M.D. 303

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 6 1943

THE PROBABLE INFLUENCE OF HEALTH EDUCATION ON THE IMPROVING APPENDICITIS MORTALITY RATE

BY

D. B. ARMSTRONG, M.D., Sc.D.

Third Vice-President, Metropolitan Life Insurance Company, New York

These observations are based mainly on experience with the approximately 17 million industrial policy-holders of the Metropolitan Life Insurance Company in the United States and Canada—men, women, and children mostly in the wage-earning sections of the population. They are sufficiently representative, in number and geographically, of the populations of the two countries to be indicative of general conditions. Frequent mortality, morbidity, and other comparisons have confirmed this statement.

Among these millions of policy-holders the performance of appendicitis has been of an arresting and definitive character during the last 30 years or so. After a steady rise in the death rate since 1911, levelling off about a decade ago, the fatality rate started a fairly marked, consistent, and recently accelerated decline. This decline occurred despite a reported increase in the incidence of the disease. We are, in fact, concerned in this analysis with appendicitis as a cause of fatalities and with influences that seem to have affected the prevalence of serious and fatal complications. We are not aware of any new approaches affecting the incidence of the initial disease itself.

The Improvement in the Mortality Rate

That there has been a marked improvement in the death rate from appendicitis is evidenced by the records of industrial policy-holders as well as by those for the general population. There were indications that a maximum level in the mortality rate had been reached during the period 1929 to 1932. Since 1933 the decline has been consistent, and should probably be considered in two phases—1933 to 1939, and 1940 to date. It is believed that the decline in the first of these periods reflects in substantial part certain health educational activities undertaken with increasing intensity during those years. Since 1940, however, while the educational work has continued, subsequent therapeutic interventions have apparently produced an even more pronounced mortality improvement.

We are primarily concerned in these analyses with the first period mentioned above, when for the industrial-policy-holder group the appendicitis mortality rate decreased from 13.2 per 100,000 in 1933 to 10.3 in 1939—a reduction of approximately 22%. If in this group we go back to an earlier peak year (1929), when the rate was 14, the decline by 1939 is 26.4%. It may be safely said that during this period the picture has been influenced by no great new medical discoveries, such as toxoid in diphtheria or other striking immunization or therapeutic procedures, although there may have been some modest advances in surgical skill, some stimulus to hospitalization through voluntary prepayment insurance plans, and other minor influences. Yet the chief variables in the picture seem to be the mortality rate and the cumulative health educational effort to be subsequently described.

Can Health Education be Measured?

It must of course be admitted that one can never "isolate" health education or any other single factor in such a complex picture and give it a specific value. Conditions and results are influenced by other tangible as well as intangible factors, such as the prevailing medical opinion, hospitalization facilities and practices, nursing influences (such as the nursing service which the Metropolitan Life Insurance Company provides for its industrial policy-holders who are under medical care and acutely ill in their homes). Yet one may say that, of all the influences at work upon appendicitis in this instance, health education stands out as an essentially new ingredient. This health education factor seemingly influences not only Metropolitan experience but, as implied above, that of the general population as well. For instance, a drop of over 29% in appendicitis mortality in the Metropolitan experience in 1933 to 1940 is equalled by an improvement to the same degree for the general population in this period.

Health Education plus Sulphanilamide

In passing we should also make a brief reference to the second period—1940 to the present time. This period, as stated, has shown an acceleration in mortality improvement, and there is little doubt as to the reason. The health educational work has been continued and intensified, especially during 1940, but the new factor is the introduction of the sulphonamide drugs, and particularly the use of sulphanilamide intraperitoneally in cases of appendicitis with perforation and peritonitis. In fact, taking the period from 1933 to the first half of 1942, the insured group showed a mortality rate decline from 13.2 to 5.5, or 58% (general population figures are not yet available beyond 1940). The influence of chemotherapy on the last two or three years' experience is brought out by recent hospital reports dealing with deaths from peritonitis following appendicitis. Actually the number of deaths from appendicitis itself has always been relatively small. Perforation and peritonitis are the principal fatal factors. It has been estimated that more than 80% of the deaths from appendicitis are caused by this complication. It is also true that the peritonitis death rate and the incidence of the complication itself have been improving for some time, apparently reflecting the educational efforts during the earlier years. Hospital studies in Philadelphia, for instance, showed a decline in perforated appendicitis from 43% in 1928-9 to 19% in 1937. Now, current reports on acute appendicitis with perforation in certain New York City hospitals show very striking contrasts. One of these reports refers to 742 cases in 1935 to 1939, with about 3% fatal. In 1940 and 1941 this study covered 400 cases, with the use for the first time of sulphanilamide given intraperitoneally where the appendix had ruptured, with *no deaths*. Another series indicates 741 cases of appendicitis with perforation and peritonitis, with 2.7% fatal before

the use of the drug. Since beginning the intraperitoneal injection of sulphanilamide these observers record 642 cases with *no deaths.*

Savings in Death Claims

From the point of view of the insurance company, we are interested not only in deaths but also in death claims. The Metropolitan Life Insurance Company in its total death claim experience shows a decline in death claims from appendicitis from $3,032,000 in 1933 to $2,000,000 in 1941, in spite of a marked growth in the size of the company and the amount of insurance in force during that period. In fact, the Metropolitan insurance in force in 1933 was $18,802,984,818, as compared with $25,433,226,148 for 1942. While it is difficult to appraise the cost of health educational and special therapeutic efforts, it can undoubtedly be said that this improvement in death claims represents a saving in one year alone of many times the cost of all the educational activities carried on throughout the whole period in question.

The Health Educational Approach

What specifically were the health educational approaches to the problem? It may be said that a number of agencies have participated in the activity in a rather isolated way. The Health Council in one city, a medical society in another, have taken an interest in the appendicitis problem from the educational angle. However, there has been in the United States and Canada no national sponsorship for this movement, such as one sees for tuberculosis, venereal diseases, cancer, poliomyelitis, etc. The official public health authorities have not been active until recently, though about a year ago the United States Public Health Service published its first bulletin for popular distribution among industrial workers on the subject of appendicitis.

Co-operation of the Medical Profession

The Metropolitan Life Insurance Company was the first nation-wide agency to take a major interest in this problem, and presumably some of the details in the approach made will be of interest. At the start it may be said that an attempt was made to present a simple message, briefly and clearly, to the lay reader. The burden of this was that in case of persistent severe abdominal pain *the doctor should be called* and *no laxatives or cathartics* taken in the meantime. Contrasting experience was presented as to mortality among those taking cathartics and not taking cathartics, among those receiving *hospital attention early* and hospital attention late. Every effort was made educationally to join hands with the medical profession in stressing the avoidance of self-diagnosis and treatment. One of the leaflets used in the campaign may be quoted in this regard as follows:

> "Appendicitis is one of the leading causes of death among children, adolescents, and young adults, thus taking life during the most productive years. *Self-treatment is responsible for a large number of the 16,000 to 18,000 deaths which occur yearly in the United States through appendicitis.* If a doctor is called promptly and skilled surgical attention obtained when necessary, nearly all such deaths can be prevented."

Aid of the Insurance Agents

Numerous methods and devices were used to arrest the attention of the policy-holder and to give him simple advice in concentrated, dogmatic, and emphatic form. The insurance company, as in its past efforts, made special use of its own field staff of more than 20,000 men—agents who enter thousands of industrial homes periodically, many of them weekly, for premium collection and other business purposes. These men have had a long training not only as insurance agents but also as health educators, and co-operated admirably in the appendicitis educational effort. As a matter of fact, in 1940 alone 93% of the men were active and took an aggressive part during that year. Many of them of course have had personal experience with appendicitis in their own families. Properly equipped with educational material, they serve admirably as health advisers for the families with whom they are in contact. Indeed, the company has hundreds of letters from parents, teachers, physicians, and others expressing gratitude for the part played by Metropolitan literature or the Metropolitan field representative in protecting or saving a life from the hazards of appendicitis. For instance, a New Jersey physician wrote the company the following letter:

> "I wish to call your attention to the admirable attitude of one of your agents in regard to a boy who was stricken with a severe case of acute gangrenous appendicitis. Your agent, who happened to walk into the boy's home, immediately became aware of this situation and, due to his efforts, saw to it that he did not waste any time, communicated with me, and had the boy at Christ Hospital, Jersey City, in a very short time. The agent about whom I write is entirely unknown to me, but, whoever he is, I feel that he played an important part in this affair and deserves an endless amount of praise."

Another report from a Pacific Coast agent is typical of much field experience in this effort:

> "The mother was about to administer a laxative. I opened one of our appendicitis pamphlets and showed it to her, and she immediately called a doctor. A blood count was taken and the baby was found to have appendicitis."

One of the company's assistant managers from a Middle West district wrote in as follows:

> "While I was out with Agent ——— I came into a home and found that the baby was sick with a stomach-ache. The mother was about to administer a laxative. I opened one of our appendicitis pamphlets and showed it to her, and she immediately called a doctor. A blood count was taken and the diagnosis of appendicitis made. This certainly was a wonderful help to her, and she appreciated it very much."

Messages Brief and to the Point

During the last concentrated effort with educational literature the agents were equipped with a simple leaflet, which consisted of four pages of text in colour and large type, and with a summary phrased and set as follows:

APPENDICITIS!!

NEVER BELITTLE THESE SYMPTOMS:
Pain or tenderness anywhere in the abdomen
Fever and nausea

. . .

IF SUCH SYMPTOMS PERSIST:
Do not take a laxative
Do not resort to massage or exercise to "work off" the pain
Do not take enemas
Do not take food or drinks

. . .

JUST BE SURE TO DO THESE COMMON-SENSE THINGS:
Call your doctor without delay
Remain quiet and apply an ice-bag at the site of the pain

In addition to other educational materials the company's leaflets are also liberally provided for distribution by health and educational agencies with a recognized programme in this field. In fact, 1,200,000 copies of one of the company's appendicitis leaflets were distributed in one year, and since the beginning of the organized educational campaign a total of 6,400,000 pieces of educational literature on appendicitis have been placed in American homes. At the same time this campaign was carried out also by nurses employed by or representing the company, who make 3 million visits a year to insured families to furnish bedside care and to teach personal and community hygiene. Nurses and agents of the company were urged to discuss this programme with physicians and other professional and community leaders in their districts. They were asked to study the literature themselves so as to be able to interpret it clearly. The agents were asked to leave copies in at least 50 homes in their areas.

Use of Commercial Advertising Space

The company has also utilized space in its national magazine welfare advertising series—space that monthly reaches approximately 27,000,000 readers, which naturally include all types of policy-holders, as well as a certain percentage of those in the industrial group. This appendicitis advertisement has been repeated since its first presentation, and reprints of it have been made available for distribution by co-operating organizations or individuals, especially physicians, medical societies, and nursing and public health agencies. The text of a recent appendicitis advertisement, under an illustration presenting a

physician and mother at the bedside of a small boy, may be quoted in part as follows:

"HOW INNOCENT IS A 'STOMACH-ACHE'?

A 'Stomach-ache' means *something's* wrong.

True, it may be nothing dangerous. But, because it *can* be very serious, no one should treat such a warning signal lightly. . . .

1. Call a doctor.

2. Apply an ice-bag and remain quiet.

3. Do NOT take a laxative, food, or medicine.

The importance of prompt medical attention is clearly indicated in a recent survey of appendicitis cases made by medical authorities. It reveals that the death toll, among those who delayed going to hospital from two to three days, was from *three to four times greater* than among patients admitted to a hospital within the first 24 hours. The survey further shows that fatalities among those who had taken a laxative after pain developed were more than *three times greater* than among those who had taken none. . . .

When in any doubt whatsoever about abdominal pain, call your physician for *safe* guidance—and call him in *time*. Then if serious disease is indicated an early diagnosis and treatment may speed recovery, reduce the cost of illness, and decrease the possibility of dangerous complications.

Send for Metropolitan's helpful free booklet, 'Appendicitis.'"

The effect of such an advertisement on the casual reader is indicated by a copy of a letter in the company's possession, written by a Canadian traveller to the Pullman Company, which reads as follows:

"About three weeks ago I was travelling on one of your crack trains, and was stricken with a severe stomach-ache. The porter in one of your Pullman cars was most accommodating, and I asked him for, and he was glad to provide me with, some bicarbonate of soda in an endeavour to relieve my pain. He, however, brought me from the club car a bottle of a well-known cathartic, and told me that the conductor in charge suggested that I take a dose of the same.

Very fortunately, I had a recent institutional ad. of the Metropolitan Life Insurance Company that was running in the leading magazines. This ad. was headed, 'How innocent is a stomach-ache?' and advised that you do three things: '(1) call a doctor; (2) apply an ice-bag and remain quiet; (3) do not take a laxative, food, or medicine.'

Now I do believe that if I had not read this advertisement (I am not a medical men, and unfortunately have not been interested too much in physiology) I would have taken this strong cathartic and have had a ruptured appendix.

I decided to get off the train at 4.45 a.m. instead of going through to my destination. I was operated on around 6 a.m., and the surgeon told me that if I had taken the cathartic I would have had quite a gamble with my life."

The Druggists Step In

Posters have also been used—notably a poster for display in drug stores, with the co-operation of the druggists and pharmacists. The national organization representing the drug and pharmaceutical business was perhaps the second major national agency to participate in this effort in a consistent way. The public spirit and leadership of the druggists have met with wide and merited acclaim. The drug-store poster referred to carries an illustration of a man in some distress at the prescription counter evidently seeking medical aid, with the druggist indicating doubt and saying:

"It might be appendicitis—

You should see your doctor.

16,000 to 18,000 people in the United States die yearly from appendicitis. Many of these deaths could be prevented if the doctor were called at once.

Self-treatment for abdominal pain is dangerous!

Do not take a laxative, food, or medicine.

Remain quiet and call your doctor."

This organized effort to combat self-medication has been strengthened through other lines, for in Jan., 1940, the United States Federal Food and Drug Administration put into effect a ruling making it obligatory to print on the label of laxative drugs a warning statement regarding their injurious use.

The Press, the Radio, Lectures, etc.

The education effort included many other methods and instruments, such as the distribution of news releases, the preparation of radio scripts and the use of radio stations, the furnishing of lecture outlines, with statistical data and case experience, and the encouragement of talks to lay groups of many kinds throughout the country. Here again there came in the active co-operation of the medical profession, as these talks were usually given by local physicians—often medical examiners of the company, urged to take an active part in the programme by the company's Medical Division. Groups addressed included women's clubs, parent-teacher associations, community and service clubs, employee groups, schools, churches, etc. In nearly 300 of the company's district offices, where groups of agents are employed, the agents were addressed by the company's medical examiners, stressing the vital points in the programme and urging active participation in this activity for the benefit of the policy-holders. At the same time special articles appeared periodically in the company's "Statistical Bulletin," which goes monthly to thousands of physicians, surgeons, educators, health authorities, public officials, and others.

Conclusion

This experience as a whole seems to stand out in support of the value of health education. It encourages the belief that organized effort to instruct the lay public, including those with comparatively little economic and educational advantage, can be productive of concrete results. Success depends on the use of a few simple facts, forcibly and dramatically presented. It involves the co-operation and co-ordination of many agencies and influences, and the use of a variety of approaches. Experience seems to demonstrate a degree of cause-and-effect relationship between an educational programme and a contemporary improvement in the fatality rate from appendicitis, augmented by therapeutic advances as well.

It may be added that this experience is another seemingly clear-cut demonstration that "public health is purchasable," and that purposeful, timely, and specifically "aimed" investments in this field produce definite, measurable, and substantial returns.

EFFECT OF THE *p*H OF THE BLOOD ON HAEMOLYSIS

WITH SPECIAL REFERENCE TO BLACKWATER FEVER

BY

FELIX SMITH, M.D.Birm., M.R.C.P.Lond.

Lieut.-Col., R.A.M.C.

AND

R. WINSTON EVANS

Captain (Pathologist), R.A.M.C.; Research Fellow in Haematology, Christie Hospital, Manchester

The Problem of Intravascular Haemolysis

In the course of observations on 16 subjects of blackwater fever, of whom 5 died and 11 recovered, we were naturally faced with the problem of the arrest of the haemolysis. This is of course the basic problem in all the acute haemolytic diseases, and very little is known about it. Many haemolytic toxins and poisons are known, but in no haemolytic disease has the haemolysin been isolated. In other diseases, notably paroxysmal haemoglobinuria and march haemoglobinuria, the factors which precipitate the breakdown are known (such as the influence of cold and syphilis in the former, and severe muscular strain in the erect position in the latter). We know, of course, that chronic malaria certainly, and big doses of quinine almost certainly, are the precipitating factors in blackwater fever, but we still do not know why in one case these factors produce the fever and in another do not.

Experimental Work

We have made a few observations which shed some light on the problem of the wide diurnal variation in the fragility of red blood corpuscles and the relation between the fragility and *p*H. We have shown that the fragility of red blood cells

is capable of changes within very wide limits and can vary from hour to hour. Furthermore, our experiments have proved that the red cell fragility is increased in blackwater fever at the onset, and that this is due, in part, to a lowering of the *p*H of the blood. It should be noted that Israëls, working on paroxysmal haemoglobinuria, also observed that a low *p*H is connected with attacks of haemoglobinuria in that disease, but he does not connect this with alterations in the red cell fragility. The method used in these experiments on fragility was quantitative, the blood being diluted 1 in 200 in 0.4% saline in a haemocytometer pipette, and the number of cells remaining counted after half an hour in the counting chamber.

The first observation was that one subject showed wide variations if tested at different times on the same day. Counts were therefore done at close intervals throughout a 24-hour period, on both healthy and malarial subjects, and it was found that in all subjects there was a wide variation in red blood cell resistance. Examples are 600,000 at 8.30 a.m. and 2,850,000 at 2.30 p.m., 770,000 at 10.15 a.m. and 4,450,000 at 3 p.m., without change in the total red cell count. The period of increased resistance is from 11.30 a.m. to 8.30 p.m., with a peak at 3 p.m., and during the night the resistance remains low throughout. The red cell fragility is increased in blackwater fever—that is, the variations are below the limits observed in normal subjects.

One example of a physiological variation may be given in full:

Time	Cells Unhaemolysed	Time	Cells Unhaemolysed
8.30 a.m.	940,000	8.30 p.m.	1,280,000
9.30 ,,	762,000	10.0 ,,	920,000
10.30 ,,	1,950,000	11.30* ,,	1,740,000
11.30 ,,	2,200,000	1.0* a.m	1,055,000
1.0 p.m.	2,150,000	2.30* ,,	920,000
2.30 ,,	2,460,000	4.0* ,,	980,000
4.0 ,,	1,560,000	5.30* ,,	923,000
5.15 ,,	1,485,000	7.0 ,,	1,500,000
6.30 ,,	885,000	8.30 ,,	1,300,000

*Sleeping.

All possible factors of experimental error were considered and excluded, and the experiment was repeated until we were satisfied of the constancy of the result. A rigid technique was observed throughout the series of experiments, which were carried out only with CO_2-free solutions. It was found that the variations in fragility were unaffected when the tests were made in the incubator at 37° C., at room temperature, and on ice.

Dacie, Israëls, and Wilkinson (1938) have shown that the red blood cells in cases of haemoglobinuria are susceptible to a haemolysin of unknown nature, present in normal serum, which exerts its greatest effect between *p*H 7 and 7.2. They have also shown that during sleep the *p*H of the blood is decreased. It therefore occurred to us that the increase in fragility which had been observed during the night hours might be related to this lowering of the blood *p*H. Experiments *in vitro* were done, using a 0.433% solution of saline buffered to the *p*H levels of 6.8, 7.5, and 8.2. The results obtained were: (1) At the lowest *p*H the cells were more fragile, as judged not only by the number of cells surviving but also by the wide difference in size and shape. These cells were all markedly spherical and swollen, and their appearance suggested that they were almost at the point of haemolysis. (2) At *p*H 7.5 intermediate figures and appearances were observed, and (3) at *p*H 8.2 all the surviving cells were singularly healthy and normal in appearance. The actual numbers of surviving cells counted at these levels depended, of course, on the time of day that the experiment was performed. (This work is being continued.) The application of these results to the treatment of blackwater fever is discussed under "Treatment."

Certain Clinical Features of Blackwater Fever, based on Personal Experience

The remarks that follow are based entirely on personal observations, and we are quite aware that more extensive experience might well lead to a modification of some of the views expressed.

Blackwater fever can be considered as an intense haemolytic anaemia of sudden onset, occurring in association with malignant tertian malaria. The mechanism of the haemolytic process is not known, but it is thought by many that the haemolysin results from some metabolic breakdown which is precipitated by the administration of quinine or synthetic quinine substitutes. Lysis of the corpuscles occurs, with liberation of oxyhaemoglobin into the plasma. This is converted into methaemoglobin and other pigments. Fairley and Bromfield (1937, 1939) have shown that the serum contains oxyhaemoglobin, methaemoglobin, and methaemalbumin. This last pigment has a large molecule, is impermeable to the kidney, and is never found in the urine.

The appearance of the urine in blackwater fever is characteristic. It is of a port-wine colour, with a pinkish froth on shaking. A heavy brownish sediment collects on standing. Albumin is present, and microscopy shows absence of cells. Later in the course of the disease, when some renal necrosis may have taken place, a few red and white cells may be present.

Clinically, blackwater fever in our experience presents certain differences from the disease described in the textbooks as occurring almost exclusively in "old coasters" with a long history of numerous attacks of self-treated subtertian malaria. Our cases have all been in unusually good types of soldier, which, from the Army point of view, made their recovery all the more important. In only one case was there reason to suspect carelessness in the taking of suppressive quinine, and this case also had the greatest number of attacks of malaria—five: the other patients were regular quinine-takers and were in good general condition. Alcoholism, venereal disease, dysentery, and lack of a reasonable standard of education were not factors in this group of cases. The "pre-blackwater" state as described in the textbooks was not present. The statement made in some books that the disease is almost confined to light-haired men was also found untrue for our cases. In fact, we think the majority of these cases—certainly the last five—were of the type with black hair, rather pale complexion, and brown eyes.

The onset of all our cases of blackwater fever was characterized by a rigor. This is worth mentioning because definite rigors occur in less than a third of our series of cases of subtertian malaria. The only unusual symptom preceding the rigor was a sense of intense general fatigue for two or three days. After the rigor vomiting was a constant feature, and these three symptoms—fatigue, rigor, and vomiting—should lead to careful examination of the next specimen of urine. It is essential to examine it microscopically before making the final diagnosis. Acute pyelitis, with an unusual degree of haematuria, associated with acute bacillary dysentery, imitated the onset of blackwater fever in one case, and illustrates the importance of microscopical examination. When blackwater fever occurs during quinine treatment of an attack of subtertian malaria it often does so on the third or fourth day. It is safer to give the quinine hydrochloride in six doses of 5 gr. than in three of 10 gr. Quinine must of course be stopped completely if blackwater fever occurs. Slight jaundice associated with albuminuria is also an indication for stopping quinine. In treating malaria the urine should be rendered alkaline as a routine and the patient kept in bed. Cases of blackwater fever should not be moved unless circumstances make this absolutely essential. It is tempting at the onset to send these patients to hospital, as their general condition is often quite good; but within 36 hours they become extremely pale and obviously too ill to move. Very deep jaundice did not occur in any of our cases, but a lemon-coloured tinge appeared on the first day and deepened as the haemolysis continued.

It has been calculated that a man may lose the equivalent of 4 to 6 pints of blood by intravascular haemolysis in 36 hours in this condition. The liver, like the reticulo-endothelial system generally, has an enormous capacity for dealing with liberated haemoglobin by splitting haematin into bilirubin and haemosiderin, the first being excreted in the bile and the second being stored, chiefly in the liver and spleen. The appearance of haemoglobin in the urine is therefore an indication more of the rapidity of the breakdown than of its extent. Nevertheless, at best it means the loss of several pints of blood, and the condition is comparable (but not exactly similar) to that of traumatic haemorrhage. The pallor and sweating and the thin running pulse are very similar to those of wound shock, and the general treatment has much in common with that of shock. The factor which is absent is that of the effects

of a wound—with the possibilities of sepsis, absorption of products of tissue breakdown, etc. The factor which is present in blackwater fever and absent in traumatic haemorrhage is that of the rapid accumulation of the breakdown products of intravascular haemolysis and the serious damage which can result to the kidneys from attempts to excrete these products.

The older theory that the chief, and likeliest, cause of kidney damage is the accumulation of crystals of acid haematin in the tubules is now largely discarded. Sections of the kidney show microscopically that the tubules are blocked, but it seems more probable that this material is a plug of methaemoglobin, with the debris of broken-down red blood cells and damaged renal-tubular cells, etc. It is possible that the first step in this process is the early degenerative change in the epithelial lining of the tubules due to the severe anaemia, with resulting nutritional deficiency of these cells. That the cells lining the glomeruli are much less and much later affected may be taken as supporting evidence of this theory, since these cells receive a more plentiful blood supply than do those lining the tubules. However this may be, the fact is that the tubules do tend to become blocked, and one of the most important points in treatment is to prevent this blocking. We therefore should consider the factors causing this renal obstruction, and how they can be avoided or minimized. These factors are: (A) the pigments and cellular debris resulting from continued haemolysis; (B) the tendency of these products to obstruct the renal tubules; (C) the severe degree of anaemia, damaging the kidneys' excretory function; (D) the production of acid haematin crystals in the kidney tubules; (E) the existence of living subtertian malarial parasites in the blood.

Treatment of Blackwater Fever

Factor A

The first problem in treatment, therefore, is how to check the haemolysis. The application of the results of the experimental work on fragility mentioned above is obvious. Alkalis must be given in such amounts as actually to increase the *p*H of the blood plasma. The value of this was most strikingly illustrated by two of our cases. In the first an attack of tetany, with a major convulsion, occurred after administration of 2% sodium bicarbonate in normal saline by slow intravenous drip. This patient passed clear urine immediately afterwards and the haemoglobinuria never recurred; his general condition also improved considerably and the attack of tetany appeared to be the turning-point to recovery. He was a young man whose acid–alkali balance was easily upset. During his attack of tetany the *p*H of the blood would be raised well over normal physiological limits, and the effect was presumably to raise the resistance of his corpuscles and cause the haemolysis to cease. In a second case the urine had become clear and remained so for 36 hours, when a recurrence of haemoglobinuria occurred in two specimens. Alkalis were given in concentrated form (3M sodium lactate 40 c.cm. intravenously and 60 g. each of sodium bicarbonate and sodium citrate by mouth). The next specimen was clear, and the proof of hyperalkalinization was to be seen in the production of Trousseau's sign when a sphygmomanometer was applied to the arm.

For the prevention of haemolysis and the rendering of its products as harmless as possible we have given alkalis by mouth as follows: Sod. bicarb. gr. 20, sod. citras gr. 20, aq. ad 1/2 oz.—two-hourly, or double that dose four-hourly. This is not a particularly high dosage, but there is another and most important means of alkalinization at our disposal—the use of 2M or 3M solutions of sodium lactate intravenously. As a routine 20 c.cm. of this solution has been given three times a day at equally spaced intervals, using a 20-c.cm. syringe and a fine hypodermic needle. In our opinion double this dose might easily be used with advantage. It can be made up in a saturated solution of sodium bicarbonate, but without the latter it has the inestimable advantage of being sterilizable by boiling, and since a saturated solution of sodium bicarbonate is only about 11%, the amount thus given is small, and we have discontinued its inclusion. Intravenous administration of concentrated solutions of sodium lactate is strikingly effective in producing rapid alkalinization and stopping haemolysis. It has, however, the disadvantage of causing thrombosis of veins, and one should therefore avoid the use of veins which may be needed later for blood transfusion.

Factor B

The problem of ridding the kidneys of the products of haemolysis is met by the intake-and-output balance of fluid. In the Tropics sweating is responsible for perhaps half of the excretion of the intake of fluid by mouth and thus tends to concentrate the urine. Sweating therefore is a danger in blackwater fever, and the nurses should be instructed to keep the patient's skin cool: we have always ordered tepid sponging to reduce temperatures surpassing 103° F. At the onset nearly all the cases show an excretion of urine of two-thirds of the intake of fluid by mouth, and this is quite satisfactory. We have become concerned only when the output has fallen below half the intake. It is a point in prognosis that cases showing a poor excretion from the start have a poor chance of recovery; and, conversely, patients in whom the output of urine remains high in quantity still have a good chance of recovering even though the urine remains dark and bloody and the blood count falls below 2,000,000 cells.

The administration of fluid by mouth probably cannot be overdone, but, from the evidence of a fatal case, it can be easily overdone by intravenous drip administration. This case developed oedema of the dependent parts, and on performing the necropsy the tissues throughout the body were found to be saturated and swollen with water. The excretion of water is the function of the healthy kidney, and to pile up the " head " of water behind the kidney in the hope of " flushing out " that organ is unscientific. It is much more reasonable, in our opinion, to try to sustain the efficiency of the kidney by attending to its nutritional needs—i.e., by the judicious use of blood transfusions. This is referred to under the next heading. On this question of excretion a final word may be said on the subject of uraemia. One of our patients certainly died of acute kidney failure. We gave the orthodox treatment, which is really an attempt to make the kidney and bowel take over the excretory functions of the kidney; but it is probable that by so doing we only made bad worse, by concentrating the urine and increasing the already extensive blockage of the renal tubules.

Factor C

The blood picture at the onset is invariably characterized by a considerable degree of anaemia. A typical series of red cell counts is as follows: 3,500,000 at the onset, 2,800,000 after 24 hours, 2,200,000 after 48 hours (the urine is often clear by this time), 1,800,000 after 72 hours. The fall in haemoglobin percentage is parallel with that of the red cells, and a colour index of unity is maintained, using mean standards.

During the stage of haemolysis the leucocyte count was invariably found to rise, a relative and absolute increase in monocytes being responsible: in one case the monocyte count was 47.5% of the total leucocyte count of 18,000. They are presumably liberated to deal with cell debris, such as " ghost " red corpuscles. The bone-marrow picture is that of a normoblastic hyperplasia, the majority of the normoblasts being of a large variety showing early eosinophilic staining reactions. At a later stage in the disease—i.e., during the recovery period—these are replaced by a smaller form of normoblast with an intensely basophilic cytoplasma, probably indicating an acute iron deficiency. As the haemolysis abates there is a marked fall in the number of circulating leucocytes, and in three of our cases a leucopenia (in the region of 4,000) developed.

Treatment of the anaemia is therefore mainly the administration of iron, and the iron salt at our disposal was ferri et ammon. cit., which was given in a dose of 30 gr. t.d.s. This was started very soon after the urine had cleared. In order to make sure that no dietetic deficiency should slow up the response of the bone marrow it was our practice to give liver extract intramuscularly at the same time.

In some cases of blackwater fever there is a tendency for a slow marrow response, and the haemolytic toxin responsible for the disease may possibly exert a toxic effect on the marrow. In one case alarm was felt at the possibility of a marrow aplasia occurring. In all cases the total red cell count does not begin to rise until three clear days after haemolysis has ceased, and it may be as long as six days. It must not be forgotten that the fact that the urine has ceased to contain haemoglobin does not mean that haemolysis has ceased. It may be going steadily on—and when parasites persist and the temperature remains up, haemolysis certainly is going on, just as it does in any severe case of subtertian malaria.

A good deal of attention has recently been paid to blood transfusion in blackwater fever and many papers have been published on it. It is almost universally praised, and some authors advocate frequent transfusions of whole blood from the onset of the disease. Our own experience has caused us to modify this view; we now regard the problem as follows:

Blood transfusion would be of tremendous value if the normal plasma given contained any antihaemolytic substances which would cause the intravascular haemolysis to cease. In fact, in our experience there is no evidence that it does so. This would not matter much if it were not that blackwater fever patients seem to be particularly liable to violent reactions during or after the transfusion—especially in the first two days. This may be connected with the tendency to acidaemia, and is therefore a further reason for early and thorough alkalinization. The problem of compatability is particularly acute in blackwater fever, and cross-matching—both ways—is essential. Moreover, the suspensions of cells should be tested not only at room temperature but also on ice in an ice-box for a full 24 hours. It often happens that out of a dozen donors, all of the same group as the patient, only one or two—and sometimes none at all—are really compatible when subjected to this stringent test. Even when one is found, unpleasant reactions have occurred during

transfusion, and the best method is probably to give minute quantities, and to give them slowly—e.g., 20 drops in the first ten minutes, after which the transfusion may be proceeded with more quickly.

For these reasons we have given up using blood transfusions in the first two days. We, however, acknowledge their great importance in preventing a profound anaemia from developing, and when the red cell count is steadily falling and is approaching 2,000,000 a pint of blood should be given. It is useful to remember that whenever a needle is safely fixed in the patient's vein, for either blood or sodium-bicarbonate-and-saline transfusion, the opportunity is present to add slowly 20 or 40 c.cm. of the concentrated sodium lactate solution mentioned above.

Transfused red blood cells undergo intravascular destruction just as do the patient's own cells, and for this reason alone it seems wise to avoid transfusions in the early stage of the disease, when, as previously noted, our efforts should be directed at checking—not increasing—intramuscular haemolysis.

Factors D and E

The question of preventing the formation of acid haematin crystals has already been mentioned, and it suffices to say that the high degree of alkalinization advocated will certainly prevent this happening.

Finally, there is one aspect of blackwater fever which tends to be forgotten. In the constant watch which must be kept over the intake and output, the reaction and appearance of the urine, the blood picture, and so on, we are apt to forget that the patient is suffering from a severe attack of subtertian malaria. It is an attack, moreover, which cannot be treated by quinine or quinine substitutes. High temperatures on the first, third, and fifth days are therefore not a matter for surprise, and an attack of typical malaria is common enough about 10 days after the blackwater has ceased. In one case parasites persisted in the blood from the onset of the disease; the urine cleared up, but the temperature persisted; and finally, 14 days after the onset, the patient died of cerebral malaria. Looking back on this case, it is now felt that we should have given quinine courageously instead of in the minute doses we used. Our present plan is to give a half-tablet of mepacrine 48 hours after haemoglobinuria has ceased. If no ill effect ensues we give a half-tablet twice a day for a week, and thereafter two tablets every Sunday and Wednesday in the approved " suppressive " manner.

Discussion

This paper claims that the fragility of red blood cells varies considerably throughout the 24-hour period. Further, it advances the theory that the *p*H of the blood plasma is the factor responsible for these alterations in fragility and claims that this is demonstrable *in vitro*, using solutions of saline varying in *p*H from 6.8 to 8.2. An immediate criticism is that the *p*H of the blood plasma never varies to anything like this degree; and a second criticism might be that *p*H estimations of the blood were not done at the same time as the fragilities were estimated. This latter procedure was not possible—to the necessary degree of accuracy—owing to the conditions under which the work was performed. The former objection is perhaps fairly met by the assumption that in cases which developed clinical tetany the plasma *p*H actually would approach 8.

Case reports have not been included in detail, and a short account of the series should therefore be given. The original 10 cases were seen by one of us (F. S.) and treated on the lines given by the textbooks. It is well known that blackwater fever varies in severity from place to place and in different years. Three consecutive deaths occurred early in the series, and it was realized that we were confronted by a particularly bad type of the disease. In the cases numbered 7 to 10, therefore, an attempt was made to improve this high mortality by using early and repeated blood transfusions—a method which has been advocated with enthusiasm in recent years. In only one case did we feel satisfied that this procedure saved the patient's life. In the other cases blood transfusion was clearly not without its dangers, even though the greatest care was exercised in matching.

Cases 11 to 16 occurred in a different colony, where laboratory conditions were considerably better. The second of these cases coincided with the observation of the variation of fragility of red cells. It is referred to earlier on in this paper as the case in which tetany occurred followed by cessation of haemolysis. The suggestion that alkalaemia was responsible for this was obvious, and led to the experimental work *in vitro* which confirmed this. Cases 13, 14, and 16 were treated successfully by the method described, enough alkali being given to produce Trousseau's sign. Cases 10 and 15 both had suppression of urine from the onset and died of uraemia.

The final case illustrates the points which it is desired to bring out, and the following notes are therefore included:

Case Notes

B. H., British, aged 24; 14 months' service in Tropics. Blood group O. Admitted 9 p.m. Sept. 28, 1942.

Previous History.—In U.K., no serious illness. In the Tropics: General lassitude for three months; headaches for four weeks; no temperature, sweating, shivering attacks, or other symptoms to suggest malarial infection. He has been sleeping within a few hundred yards of a native village. He observes antimalarial precautions and takes a daily dose of quinine hydrochloride 5 gr. Occupation, indoor and sedentary. For three months has been on duty three nights each week, but does not remember being bitten by mosquitoes. Smokes 20 to 30 cigarettes and has one or two bottles of beer a day. Walks about two miles daily.

History and Progress.—An attack of shivering, followed by sweating, occurred on the evening before admission. On Sept. 28 he complained of headache and pains in the joints and muscles of legs and arms. Felt hot and sweated freely, and in the late afternoon vomited seven times in two hours. Bowels opened normally. Temperature 103.8°, pulse 124, respirations 18. Spleen enlarged 1 in. below left costal margin. The skin over the chest and back affected by prickly heat. No signs of anaemia, jaundice, or oedema. Herpes labialis not present. Conjunctivae suffused. Urine dark in colour but contained no albumin; reaction acid. Examination of all systems showed no sign of disease other than the splenic enlargement and the existence of an attack of subtertian malaria. On admission given potass. citras and sod. bicarb. āā 30 gr., and nursed in blankets.

Sept. 29.—Blood film positive for parasites. Quinine hydrochloride 10 gr. b.d. Alkalis as above t.d.s.

Sept. 30.—Felt well. Temperature 100° at 7 p.m. Treatment continued, with quinine increased to 30 gr.

Oct. 1.—Felt well. Bowels open twice. Urine alkaline to litmus. Temperature normal until 7 p.m., when it was 99.6°.

Oct. 2.—At 3 a.m. vomited. Got up and passed " dark-coloured " urine, which was not saved. Returned to bed without reporting this. Awakened at 5 a.m. feeling shivery. Urine again passed, and later reported as containing " haemoglobin, albumin, much debris, occasional epithelial cells, and very occasional erythrocytes." It was alkaline in reaction. Conjunctivae and skin showed slight jaundice. Liver and spleen tender on palpation. At 6 a.m. temperature 100.2°, pulse 86. Treatment by abundant fluids and alkalis started immediately. Quinine stopped. 8 a.m.: night urine was 7 oz. plus one lost specimen. Fluid taken by mouth, 31 oz. 8.15 a.m.: 3M sodium lactate 40 c.cm. intravenously. 11 a.m.: Hb 60%; R.B.C. 4,000,000; W.B.C. 6,000—polymorphs 62%, lymphocytes 28%, monocytes 10%. 12.45 p.m.: Complained of aching pain in lower abdomen, accentuated after passing urine. 1.50 p.m.: B.P. 120/80; 3M sodium lactate 20 c.cm. intravenously. 7.20 p.m.: 3M sodium lactate 40 c.cm. intravenously; carpal spasm present on application of pressure to arm. 8 p.m.: Intake of fluid since 8 a.m., 155 oz. by mouth plus 12 oz. alkaline mixture (360 gr. pot. citras, 360 gr. sod. bicarb.) plus 100 c.cm. sodium lactate solution intravenously; urinary output, 80 oz.; the urine remained " black " throughout the day. 8.45 p.m.: A slight rigor; complaint of cramps, and jaw felt stiff; Trousseau's sign easily elicited; specimen of urine definitely lighter in colour.

Oct. 3.—2.55 a.m.: Urine practically normal in appearance. 4.55 a.m.: A " black " specimen of urine. 8 a.m.: Urine again normal in appearance. Since 8 p.m. on Oct. 2 intake of fluid has been 128 oz.; output of urine, 58 oz.

Later details show a rapid improvement in urinary output and there was no further haemoglobinuria. Blood examinations on Oct. 3 showed Hb 50%, R.B.C. 2,500,000; and on Oct. 4 Hb 45%, R.B.C. 2,500,000—illustrating the rapidity with which a severe degree of anaemia may be reached. There was gradual improvement on the succeeding days.

Summary

Certain aspects of the pathology and treatment of blackwater fever are discussed. An account is given of experimental work which shows that the fragility of red blood corpuscles is increased at low *p*H levels and decreased at high levels. A new rationale for the treatment of intravascular haemolysis is therefore suggested, and the methods of giving alkalis are described. The value of intensive alkali therapy is illustrated by reference to cases. A discussion on the clinical and haematological features of blackwater fever is given, with an account of the treatment.

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DELAY IN DIAGNOSIS AND SANATORIUM TREATMENT OF PHTHISIS

BY

BERTRAM MANN, B.Sc., M.D., D.P.H.

Consultant Tuberculosis Officer, West Riding C.C. of Yorks

It is generally accepted that delay occurs before the diagnosis of pulmonary tuberculosis is established. Most authors are agreed that part of this delay is due to the development of tuberculosis in the absence of symptoms. For this reason mass radiography has been advocated for the detection of the early asymptomatic case (N.A.P.T., 1942, and others). Following this period of early or latent disease there is a phase in which the signs or symptoms may or may not suggest phthisis. Indeed, there is such a wide variety of non-specific symptoms that the condition may often be erroneously diagnosed as anaemia, debility, bronchitis, influenza, atypical pneumonia, etc. It is with this latter phase—the phase of partially defined signs and symptoms—that this paper is concerned.

The Investigation

A total of 300 patients, consisting of 165 males and 135 females, were investigated. A careful history was noted, with especial emphasis on haemoptysis, pleurisy with and without effusion, a recent history of contact (two years) associated with debility, and a loss of weight of over 4 lb. associated with debility. These symptoms and signs were taken as criteria because, while not pathognomonic, they can be regarded as strongly suggestive of phthisis. In each case the total period of delay from the time those "suggestive" signs or symptoms occurred until the date of admission for sanatorium treatment was analysed under three headings. (1) Time-lag elapsing between suggestive signs or symptoms occurring and the patient's seeking medical advice from his practitioner; (2) time-lag elapsing between the patient's seeking medical advice and being referred by his doctor for consultant or dispensary opinion (or notified by the practitioner himself); (3) time-lag elapsing between the patient's first dispensary consultation and his admission to sanatorium for treatment.

In this way some attempt was made to ascertain statistically where the principal delays in final diagnosis took place after it could *reasonably* have been established. The average total delay between suggestive symptoms occurring and admission to sanatorium was found to be 9.27 months. Of this, 3.64 months was the average delay before the patient with suggestive symptoms consulted his practitioner. A further average of 3.28 months occurred before the patient was referred for dispensary or consultant opinion; and a final delay averaging 2.35 months took place before treatment was initiated in sanatorium.

Those time-lags were then classified according to age and sex groups, with the following results.

TABLE I

Age Group (years)	Males		Females	
	No.	Average Time-lag before Patients consulted Practitioner (months)	No.	Average Time-lag before Patients consulted Practitioner (months)
5–9	1	0	0	0
10–14	0	0	1	0·75
15–19	14	1·58	18	2·097
20–24	25	2·5	33	3·0
25–29	31	2·92	28	3·95
30–34	26	3·26	21	3·88
35–39	19	4·17	17	5·12
40–44	17	3·63	8	6·55
45–49	9	3·56	5	7·33
50–54	11	3·27	1	7·0
Over 55	12	8·0	3	4·66
Totals	165	3·42	135	3·90

There was an average delay of 3.9 months in females and 3.42 months in males before consulting their own practitioner. In almost every age group this delay was more prolonged in females. Furthermore, there was a progressive increase in the period of delay shown by every female age group up to 50–54 years of age. A similar delay in seeking medical advice was noted in males up to 39 years of age.

Results

Haemoptysis.—In the course of investigating 300 histories, haemoptysis was found to be present on 101 occasions—i.e., 33.6%. Fishberg (1919) in this regard says: "Happy, then, is that patient who suffers an early haemoptysis, for this usually ensures early examination. It is doubtless on account of its startling character that an initial haemorrhage has earned a reputation as a good prognostic sign." A somewhat more cautious attitude is taken by Ellman (1940), who states that haemoptysis is "a fortunate accident from the patient's point of view in that a dramatic manifestation enforces him to undergo early treatment . . . or at some period of the tuberculous course." Lloyd (1940) goes even further, and suggests that haemoptysis "occurs as the earliest symptom in only a small percentage of cases, but each case calls for the fullest investigation." The average time-lag in the 101 cases showing haemoptysis was 3.64 months before such patients consulted their own practitioner. A further delay of 2.64 months occurred before the patient was referred by his own doctor for consultant opinion or before a final diagnosis was made. Thus, on the whole, haemoptysis does not appear to suggest to the patient an earlier visit to his doctor, and the patient's practitioner sends a case only 0.6 month earlier than the "ordinary" case (i.e., a case revealing any of the four significant signs or symptoms taken as suggestive of phthisis) for dispensary investigation.

Pleurisy.—A history of idiopathic pleurisy was noted in 129 cases (43%). This compares with Fishberg's figures of 30–40%, Pierce's 35% and 52% in two series of investigations, and Meachen's (1941) 13.8%. In 92 out of the 129 patients there was definite evidence of effusion, which was confirmed by radiological findings or aspiration. The remaining 37 had a history of "dry pleurisy," which diagnosis had been made by the practitioner in charge. In this condition the average time-lag before the patient attended the doctor for investigation was 3.07 months, and before being referred to the dispensary for consultant opinion a further 3.3 months elapsed. Thus in pleurisy both patient and doctor appear to have called for earlier examination than in the case of all the other symptoms or signs here considered as suggestive of pulmonary tuberculosis.

Sputum.—An analysis was made of the 300 cases with special reference to the frequency with which sputum examination was carried out by the patient's own doctor. The results are noted in Table II.

TABLE II (*300 Cases*)

No sputum present for examination	50
Sputum sent by practitioner for examination	54
Sputum not forwarded by patient for examination	1
Sputum present but not examined by practitioner	195

Thus, in only 22% of cases was sputum sent for examination by the patient's own doctor.

Family or Contact History associated with Debility.—In 99 cases there was a history of contact associated with general debility. Of this total, "exposure" outside the intimate family circle—viz., father, mother, brother, sister—occurred in 14 cases. In the remaining 85 contact took place in the same household. Beal (1940) noted 30% of his cases as showing a contact or family history, and Lloyd and Macpherson (1936) in a series of 1,000 young adults found that 39.6% had a history of contact.

Loss of at least 4 lb. in Weight associated with Debility.—Of the 300 cases 206 gave a history of a loss of at least 4 lb. in weight associated with debility.

Discussion

The object of the present survey was to determine the duration of the delay before patients suffering from symptoms "suggestive" of phthisis received sanatorium therapy. The reasons for the patient's delay before seeking medical advice are not difficult to appreciate. Antagonism to the medical profession born of ignorance and fear pervades almost all sections of society. There appear to be immense possibilities

for education and intelligent propaganda among the public on the lines indicated by the N.A.P.T., with especial emphasis on the education of females in the middle-age group of the population. How far the possibilities of propaganda have been neglected is seen in the tardiness with which patients with haemoptysis or pleurisy consult their own practitioners.

So far as the general practitioner is concerned there is room for more rapid diagnosis. According to Varrier-Jones (1933) the reason is because "in the first place the vast majority of students qualify and enter practice without seeing possibly a single early case of infiltration. They are thus unable to detect tuberculosis at its onset." This view is held also by Gregory Kayne *et al.* (1939). There seems to be a strong case for better education in tuberculosis in both the undergraduate and the postgraduate stages of medicine. A student residency in a sanatorium is advocated by Nelson (1939), but it would appear preferable that such a period of time should be spent examining the early cases of phthisis which are to be seen at the dispensary.

In patients with a history of haemoptysis there should be no further delay by the practitioner before the case is notified or is referred for specialist examination. In a number of instances "streaks" of blood in the sputum were not regarded as "suggestive" of phthisis.

Again, after an attack of pleurisy, there should not be a further delay before the case is satisfactorily diagnosed. This delay is needless, because, as Burrell (1937), Wynn (1940), Maxwell (1941), and others have suggested, in all cases in which acute pleurisy appears to be "primary" it is well to assume that the cause is tuberculosis unless definite proof of some other cause is forthcoming. There is much to be said for the opinion which urges that "primary" or idiopathic pleurisy should be made a non-specific notifiable disease which could be referred to a chest or tuberculosis dispensary for observation and final diagnosis. This would avoid the danger of branding some non-tuberculous pleurisies as phthisis and would close the avenues whereby such cases escape consultant opinion. At the same time the general practitioner would have the satisfaction of having been instrumental in finding a potential case of pulmonary tuberculosis.

Sputum.—As already observed, sputum was sent for examination by the patients' doctor in only 22% of the 250 cases in which it was present. This suggests that practitioners fail to make use of the existing free public health facilities for the examination of sputa—a failure that may in some measure be responsible for the delay in diagnosis.

Sanatorium.—The time-lag which elapsed between a patient's being notified or referred to the tuberculosis dispensary and his admission to sanatorium is to some extent a reflection on wartime conditions. In part these deficiencies appear to be due to the inadequacy of both nursing and domestic personnel in fulfilling the needs of the sanatoria (Heaf and Rusby, 1942; Snell, 1942). The corollary is that serviceable wards in satisfactory condition are out of use because of staff difficulties while patients clamour for admission. Another factor is the lack of sanatorium beds in certain areas of the country owing to "blocks" being reserved exclusively for the boarding of troops. Moreover, the existing problems have been accentuated by the wartime rise in the incidence of phthisis.

History of Contact associated with Debility.—Of the investigated cases 99 (33%) were noted to have a history of phthisis associated with debility. Thus the field of contact examination appears to provide an early and very fruitful means of finding cases.

General.—It should here be stressed that such measures as are suggested for the limitation of delay in the diagnosis of pulmonary tuberculosis and the initiation of sanatorium therapy are on no account an alternative to mass radiography. They merely re-emphasize certain well-established principles in case-finding, with a plea for their application to the public and all branches of the medical services.

Summary

Three hundred cases of phthisis were investigated with special reference to the time-lag occurring before treatment at sanatorium was started and after symptoms "suggestive" of phthisis had been established. The delays were classified according to age and sex. Particular note was taken of the delay in diagnosis following pleurisy and haemoptysis. The number of sputa sent for examination by practitioners was the subject of analysis. The following reforms are advocated.

1. A more generous plan of public education on tuberculosis on the lines pursued by the National Association for the Prevention of Tuberculosis.

2. A revision of existing undergraduate and postgraduate medical teaching, with greater emphasis on the "early" case.

3. The notification of pleurisy (primary or idiopathic) as a non-specific disease, with facilities for the reference of such cases to the tuberculosis or chest dispensaries for a more adequate and final diagnosis.

4. The more extensive employment of existing public health facilities for sputum examination.

I wish to record my thanks to Doctors H. Raeburn, V. Ryan, R. Watson, and especially Dr. G. S. Johnston of the Tuberculosis Department of the West Riding C.C., for permission to publish this investigation and for their assistance.

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LYMPHADENOMA AND LEUKAEMIA

BY

A. WILSON GILL, M.D.Ed., M.R.C.P.
Honorary Physician, North Staffordshire Royal Infirmary

AND

A. J. McCALL, M.D.Liverp., M.R.C.P.
Pathologist to the Infirmary

There are many evident clinical similarities between lymphadenoma and the leukaemias, and the suggestion has been made that a close relationship exists between these diseases. This suggestion is supported by the observation that occasionally both may occur in the same patient. The case now described appears to have been such an example.

Case History

A girl aged 18, unmarried, was first seen in April, 1940, complaining of general weakness, enlarged glands on both sides of the neck, in the right axilla and the left groin, with attacks of suffocation and dyspnoea at night suggesting mediastinal involvement. The spleen was not palpable. A blood count showed: Hb, 82%; R.B.C.s, 4,450,000; C.I., 0.92; W.B.C.s, 9,375—polymorphs 58%, lymphocytes 38%, monocytes 1%, eosinophils 3%. The family history disclosed that the patient's two sisters had died in infancy from unknown causes, and the mother suffered from anaemia of undetermined type.

Radiographs of the patient's chest revealed a mass surrounding the aorta in the upper mediastinum. A supraclavicular gland was removed. This showed the histological features of lymphadenoma. There was reticulum-cell hyperplasia with the formation of numerous Sternberg-Reed giant cells. Eosinophil leucocytes were scattered throughout the gland, and occasional plasma cells were seen. Some areas of the gland were replaced by dense collagen, and in the more cellular areas there was a fine reticular fibrosis.

Treatment by deep *x* rays (Dr. C. Bellamy) resulted in rapid disappearance of the superficial glands, considerable diminution of the intrathoracic mass, and complete relief of all symptoms. Other blood counts revealed no significant alteration. Further irradiation was given at intervals during the next two years, during which period the general health remained excellent.

In March, 1942, a sudden and dramatic change was evident. Extreme anaemia developed. Blood counts were as follows:

April 18, 1942.—Hb, 34%; R.B.C.s, 1,650,000; C.I., 1.03; W.B.C.s, 49,800—polymorphs 2.5%, lymphocytes 94.5%, mono-

cytes 0.5%, lymphoblasts 1%, metamyelocytes 0.5%, neutrophil myelocytes 1%. Anisocytosis and slight polychromasia were present. No nucleated red cells were seen. In this and all subsequent counts platelets were very scanty.

May 24, 1942.—Hb, 40%; R.B.C.s, 1,950,000; C.I., 1.03; W.B.C.s, 29,800—polymorphs 0.5%, lymphocytes 98%, lymphoblasts 1.5%. Anisocytosis ++. No nucleated red cells were seen. The only granular cells seen were 1 myelocyte and 1 polymorph.

May 26, 1942.—Hb, 22%; R.B.C.s, 1,270,000; C.I., 0.8; W.B.C.s, 180,000—polymorphs 2%, lymphocytes 75%, myelocytes 1%, premyelocytes 1%, lymphoblasts 20%.

No enlarged superficial glands were found, the spleen was not palpable, no external haemorrhages occurred, and the mediastinal shadow was not increased. There was an irregular pyrexia, which, however, showed no tendency to periodicity of the Pel-Ebstein type. Blood transfusions were given on three occasions with slight improvement. Thereafter deterioration was rapid, with the onset of uterine haemorrhage, which persisted for two weeks despite ergot, progestin, vitamin K (kapilon), and ascorbic acid.

The rapidly developing anaemia associated with scanty platelets and the increasing leucocyte count now seemed to us to establish a diagnosis of acute leukaemia. The high proportion of lymphocytes appearing in the later blood counts suggested that the leukaemia was lymphoid in type. The primitive cells observed were identified as lymphoblasts after supravital staining with janus green and neutral red. The mitochondria thus demonstrated in these cells were large and heavy and of the lymphoblastic type; these cells showed no peroxidase granules. In Romanovsky-stained films the nuclear membrane was well defined and the nucleoli distinct. Of the cells classified as lymphocytes a number showed immature characteristics in that the chromatin pattern was much finer than that of mature lymphocytes and a suggestion of nucleoli was sometimes present. Occasionally Rieder forms of lymphocytes were seen. Smear-cells were not so numerous as is usual in lymphoid leukaemia.

The above observations were regarded as confirming the diagnosis of acute lymphoid leukaemia.

Death occurred on May 29, but unfortunately no necropsy was allowed. Blood films were examined by Prof. L. J. Witts, who confirmed the diagnosis of lymphoid leukaemia. Dr. A. H. T. Robb-Smith examined a section from the lymph gland and confirmed the diagnosis of lymphadenoma.

Previously Recorded Cases

Watson (1938) has fully discussed the association of lymphadenoma with leukaemia. One of the earliest cases in which the diseases were thought to coexist was described by Fabian (1908), who observed myeloid leukaemia and chloroma, with histological changes suggesting lymphadenoma. Dietrich (1912) described his case as showing lymphadenoma and "mixed-cell" leukaemia. More recently Warthin (1931) described six cases of lymphadenoma which ultimately developed the blood picture of lymphoid leukaemia, and two further cases terminating in myeloid leukaemia. McCartney (1928) thought his case showed lymphoid leukaemia, lymphosarcoma, lymphadenoma, and endothelioma, but Ewing (1928) doubted the diagnosis of leukaemia. Hittmair (1928) maintained that transitional forms between lymphadenoma and leukaemia occurred; he described a case of lymphadenoma with "leukaemic reticulo-endothelial reaction."

A case in which the occurrence of lymphadenoma and acute myeloid leukaemia appears to have been quite clearly established was recorded by Skworzoff (1930). The leukaemia responded well to irradiation before the existence of lymphadenoma was discovered. Dubberstein (1931) recorded the simultaneous occurrence of lymphadenoma and subleukaemic lymphoid leukaemia, and a similar case was described by Craver (1936). In two cases cited by Watson (1938) lymphadenoma was observed with a subleukaemic blood picture of lymphoid type, and histological evidence of leukaemic infiltration was found.

Unless the blood is frankly leukaemic the coexistence of the two diseases must sometimes be doubtful in the absence of a necropsy, for it is recognized that a high leucocytosis may occasionally be found in lymphadenoma (Hirschfeld, 1925). A further point requiring notice is that lymphadenomatous lesions in the marrow, which were observed in 50% of lymphadenoma cases examined by Symmers (1924), may cause immature white cells to appear in the blood. In our case there was no necropsy, but we do not think that the blood changes could be regarded as a leuco-erythroblastic reaction.

In some of the published cases both conditions have been present when the patient was first seen, and in others leukaemia has appeared in a patient already suffering from lymphadenoma. It is more difficult to be certain that lymphadenoma has ever developed in a patient suffering from leukaemia. Dietrich (1912) thought this sequence occurred when lymphadenoma was found at necropsy on his patient, who had developed leukaemia 19 months previously. No biopsy was, however, done on this case, and it is possible that lymphadenoma may have existed before the development of leukaemia and escaped detection.

Irradiation Therapy

Forkner (1938) thought there was some evidence that irradiation might be one factor, perhaps in especially susceptible individuals, in the production of leukaemia. The question therefore arises whether the treatment of lymphadenoma by irradiation has any influence in inducing leukaemia in these cases. This possibility cannot be completely excluded, but it may be observed that although irradiation is almost universally used in the treatment of lymphadenoma, leukaemia occurs very infrequently in these cases. It is noteworthy that in six cases of lymphadenoma described by Warthin (1931) leukaemia developed in the absence of radiotherapy, and that Craver (1936) was unable to find any evidence that the development of leukaemia in cases of lymphosarcoma was attributable to irradiation therapy.

Lymphadenoma, Leukaemia, and the Reticuloses

Observations on the pathological processes that may affect the reticulum cell have resulted in the introduction of the term "reticulosis" to include "all conditions in which there is generalized enlargement of the spleen, lymph nodes, and liver, due to hyperplasia of differentiated or undifferentiated mesenchymal cells" (Hadfield and Garrod, 1938). It is clear that the leukaemias and lymphadenoma are both included within this definition, and the close generic relationship between these diseases has been repeatedly and strenuously argued by Warthin (1927, 1928, 1931), and was supported by Pullinger (1932).

In the classification of the reticuloses suggested by Robb-Smith (1938) the leukaemias and lymphadenoma are designated "haemic reticuloses" and "fibro-myeloid reticulosis" respectively. The name "fibro-myeloid reticulosis" had previously been suggested by Pullinger (1932), who pointed out that lymphadenoma began as a proliferation of reticulum cells, which were the root-cells of the haemopoietic tissues. She thought that differentiation of some of the reticulum cells to haemic cells occurred, as shown by the finding of myeloid cells in lymphadenomatous lesions. The leukaemias, on the other hand, were characterized by proliferation of cells which were the more-differentiated progeny of reticulum cells, and which were already determined to leucopoiesis before the proliferative process started. Pullinger's views are supported by the occasional association of lymphadenoma and leukaemia.

It appears reasonable to adopt the suggestion that lymphadenoma and leukaemia are members of a larger group of closely related diseases—the reticuloses. This serves to emphasize the close relationship between the cell-types which characterize the two diseases, though it does not imply that the stimuli which initiate lymphadenoma and leukaemia are necessarily identical.

Summary

A case of lymphadenoma confirmed by biopsy is described. There was a good response to *x*-ray therapy, and no abnormality was found in the blood.

After two years of good health, maintained by careful irradiation, the clinical picture and blood findings of acute lymphoid leukaemia developed.

Other examples are quoted in which established cases of lymphadenoma have terminated with leukaemia or in which lymphadenoma and leukaemia have been present simultaneously.

The generic relationship between the two diseases is emphasized, in conformity with the view that both should be regarded as members of the group of reticuloses.

The evidence available does not suggest that the treatmen of lymphadenoma by irradiation is responsible for a leukaemi termination in this disease.

We wish to express our thanks to Prof. L. J. Witts and Dr. A. H. T. Robb-Smith, who were kind enough to examine material from this case.

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Medical Memoranda

Successful Treatment of Influenzal Meningitis with Sulphonamides

Pfeiffer bacillus meningitis is usually regarded as a fatal disease. The following report summarizes the case notes of a patient who recovered comparatively rapidly from influenzal meningitis with sulphonamide therapy.

CASE REPORT

A boy aged 5½ years fell ill suddenly on May 30, 1942, with headache and vomiting. Next day his doctor, suspecting meningococcal meningitis, requested immediate admission to hospital. There was no history of any febrile attack among his family or immediate contacts prior to his illness.

On admission the patient's temperature was 101°, pulse 160, and respiration rate 22. He was conscious and intelligent, and complained only of headache. Physical examination revealed no abnormal findings apart from slight neck rigidity and a positive Kernig's sign. Lumbar puncture yielded a turbid cerebrospinal fluid, pale yellow in colour and under slightly increased pressure. The laboratory report was: protein, 165 mg./100 c.cm.; chlorides, 670 mg./100 c.cm.; sugar, absent. Cells, 387: neutrophils 64%, lymphocytes 30%, arachnoidal cells 6%. R.B.C.s, occasional. Culture showed *Haemophilus influenzae*.

Sulphapyridine 1.5 g. was given by mouth immediately, and was repeated after four hours; thereafter 0.5 g. was given 4-hourly. Because of the troublesome vomiting before admission nicotinic acid 50 mg. was given with each dose of sulphapyridine. The patient's general condition improved, vomiting ceased, and, apart from slight cyanosis, no new sign or symptom appeared. Lumbar puncture was repeated on June 5, when pressure was normal, and the laboratory report was: protein, 50 mg./100 c.cm.; chlorides, 670 mg./100 c.cm.; sugar, diminished. Cells, 267: neutrophils 72%, lymphocytes 24%, arachnoidal cells 4%. Culture gave a slight growth of *H. influenzae*. On the same day the W.B.C. count was 10,000 per c.mm., 58% being neutrophils.

Unlike the typical course of meningococcal meningitis, the temperature took six days to settle to normal, but on June 9 it was judged safe to discontinue sulphapyridine when a total of 30 g. had been given. All signs of meningitis had gone, and the child's general condition was excellent. However, on June 11 it appeared that a recrudescence of infection had occurred. The temperature rose to 102°, and the pulse to 124; the child was irritable and photophobic, and had slight neck rigidity again. Lumbar puncture showed the C.S.F. to be under slightly increased pressure and just opalescent to the naked eye. Culture did not confirm our clinical diagnosis of a renewed meningeal infection. The laboratory report was: protein, 60 mg./100 c.cm.; chlorides, 670 mg./100 c.cm.; sugar, considerably diminished; culture, sterile. Cells 76: neutrophils 14%, lymphocytes 62%.

As soon as the recurrence of pyrexia was reported sulphathiazole was prescribed in large doses: 2 g. being given immediately and 1.5 g. 4-hourly thereafter, with nicotinic acid 50 mg. and mist. alk. 1/2 oz. The dose of sulphathiazole was reduced to 1 g. on the second day and 0.5 g. on the fourth day, and was discontinued on the seventh day at a total of 32 g. By this time the child was afebrile, bright, and normal in every way. Subsequent convalescence was rapid and without further setbacks. The patient was discharged home in excellent health on July 3.

There have been several reports published within the last twelve months of the sulphonamide treatment of Pfeiffer bacillus infections, with variable success. It would appear that a primary meningitis responds favourably to chemotherapy. Two important factors in the successful outcome of this particular case were undoubtedly the early institution of treatment and adequate dosage with the drug employed.

City Isolation Hospital, Oxford. N. ARCHER, D.M., D.P.H.
E. SINGER, M.R.C.S., L.R.C.P., D.C.H.

Reviews

BIOCHEMISTRY AND MORPHOGENESIS

Biochemistry and Morphogenesis. By Joseph Needham, F.R.S. (Pp. 787; illustrated. 52s. 6d.) Cambridge: The University Press. 1942.

Dr. Needham seems to have read all that has ever been written about embryonic development, normal and abnormal growth, tumours and grafts, regeneration of tissues, etc., and the influence on all of these of the internal and external chemical environment. Moreover, he is blessed with an amazing memory and a laudable desire to give to every worker his meed of credit. The result is a volume which is a mine of well-documented (in fact, too well documented) information in which it is sometimes difficult to see the wood for the trees. Nevertheless, the determined reader who tackles the 677 pages with the aid of the table of contents, the glossary, and the series of well-planned indexes will find a mass of information on any aspect of the subject of cell growth and differentiation which happens to interest him.

One of the best sections of the book, and one which will appeal to medical readers, is that which summarizes the work on the chemical nature of the "organizer." When the fertilized egg of the amphibian reaches the stage at which the uppermost layer of the cells of the blastula start to invaginate to form the gastrula, certain elongated cells appear on the dorsal lip of the blastopore. At the location of these cells there now develop the neural folds, which give rise to the neural tube, the forerunner of the spinal cord, and below them the notochord, the forerunner of the backbone. The axis of symmetry of the embryo is thus laid down and the position of the other organs as they develop is fixed in relation to this axis. By means of highly skilful microsurgery it has been shown that in normal development the stimulus to the morphological differentiation of the neural tube and notochord comes from these special cells at the tip of the blastopore. By excising these cells and grafting them into another blastula, invagination and the laying down of the embryonic axis can be made to take place at any position on the surface, and by inserting two or sometimes three grafts into the same gastrula the same number of embryonic axes can be made to develop. The discovery was later made that the organizer cells can induce growth even if killed by boiling, though the development induced is chaotic, and that extracts of dead cells from adult organisms can induce the same effect. Moreover, extracts from the tissues of one species can induce differentiation in the embryo of another. The growth stimulant (the evocator) is therefore a chemical substance; it appears to be a sterol and closely related in chemical structure and properties to the male and female hormones and to the carcinogens. It is present not only in the embryo but throughout all the tissues of the adult body, though normally maintained by some means in an inactive form.

The idea that normal differentiation (as distinct from mere cell proliferation) is also based on the presence of certain definite chemical substances and that these are located in definite regions in the egg cell is borne out by Swedish work on the developing egg of the sea-urchin. In this work it is shown that definite localities in the egg pass to definite cells in the early cleavage stages and that, up to the 16-cell stage, the cells of one or more embryos can be separated and re-combined in a number of permutations and combinations. Provided that the different zones of the original egg are present in a certain ratio in the reconstituted embryo a normal development will follow in spite of the drastic microsurgical history of the embryo. If, however, an abnormal quantity of any one zone is present (or if the zone is missing) abnormal development follows. Dr. Needham develops the thesis that normal growth and differentiation depend on the action of a stimulus (a definite chemical substance) acting on a tissue which is in the correct condition to receive it. The stimulus acting on a tissue not in the correct condition will lead to disordered growth, resulting in the formation of pathological abnormalities, among which teratomata are listed. In considering growth and development, the important influence of the genes—which certainly has a chemical basis—is not overlooked, certain pathological conditions, such as the absence of the brain in the fully developed foetus, being due to the presence of a particular gene.

Dr. Needham's book has been beautifully produced, the printing and the production of the plates being of the high standard associated with the Cambridge University Press. Perhaps it is ungracious to suggest that it is far too long. The subject is fascinating, and a book written in a more rigorously selective fashion would have commanded a large number of readers who would have read it for the story it has to tell. As it is, it seems likely to be used by a much smaller group of workers as a book of reference. But perhaps that is what Dr. Needham meant it to be.

LEGAL MEDICINE IN SOUTH AFRICA

Medical Jurisprudence: A South African Handbook. By W. F. Rhodes, M.B., Ch.B., D.P.H., I. Gordon, M.B., Ch.B., and Major R. Turner, S.A.M.C. With a foreword by the Hon. Mr. Justice H. S. van Zijl. (Pp. 218; illustrated. No price given.) Capetown: Stewart Printing Company, Ltd.

Although a great deal of medico-legal practice is common to all countries, yet every country needs its own textbooks to deal with local peculiarities of law, physical conditions, weapons, poisons, and so forth. This book is the work of three members of the pathological staff of the Union Health Department in Capetown, teachers of medical jurisprudence in the University. Dr. Rhodes is senior pathologist and professor of medical jurisprudence. As Mr. Justice H. S. van Zijl says in his foreword, this is a book for medical practitioners and students who wish for practical guidance in their problems. It is not intended to be exhaustive, but none the less covers a very wide field. The study of skeletal remains, the early signs of death and appearances after death, are dealt with concisely but thoroughly. An interesting table from Drennan (1937) compares the characteristics of the European, Bantu, and Bush types. The mechanism of death is described, deaths of medico-legal importance are classified, and separate chapters are given to death by suffocation and drowning, and acute poisoning by carbon monoxide, hydrocyanic acid and its compounds. Sudden and rapid deaths due to natural causes are dealt with together—a better arrangement than splitting throughout the book the differential diagnosis from unnatural death. The chapter on anaesthetic deaths contains useful advice to anaesthetists and surgeons about their legal duties. British anaesthetists will be interested to note that the troublesome question which deaths associated with operations should be reported to the coroner is governed by statute in South Africa; but the decision whether the anaesthetic has contributed to the death seems left to the practitioners concerned. Poisons are not dealt with at any great length, and indeed a long section on them is practically useless to a general practitioner.

An outstanding feature of the book is the close attention which the authors have paid to all the aspects of the law governing their subjects. It is dealt with adequately in the appropriate places, and a late chapter contains extracts from statutes to which the reader is likely to have to refer. Some useful forms are added. The photographs are grouped at the end and include some revolting but valuable studies of persons who have died from various sorts of violence, and some interesting comparison pictures of bullets and cartridge-cases.

AVIATION MEDICINE

Aviation Medicine. By Ernst Jokl, M.D. (Pp. 213. 10s. 6d.) Unie-Volkspers Beperk, Capetown. 1942.

This book contains a sketchy, anecdotal collection of published material dealing with high altitude, acceleration and of course deceleration, blind flying, and parachute jumping. Dr. Jokl's apology for the book is that "to my knowledge no textbook exists which presents the subject of aviation medicine in the light of the entire available evidence." This observation is fortunately true, since the knowledge of the physiology and pathology of flight is advancing so rapidly that a textbook is inevitably out of date, but Dr. Jokl's book does not in any way remedy the situation. There has been no attempt to select material critically, nor has the author used any restraint in wandering from the point to introduce sections under such headings as "Russia Can Fight" and "German Defeats." The text is copiously illustrated. There is no index and, although the book is intended to review modern work, no bibliography. Much of the reproduced material has historical interest, and the volume makes entertaining reading. It does not compete with existing textbooks of the same title, and it cannot be recommended as a serious guide for practitioners of aviation medicine who have access, through Service departments, to a wealth of knowledge which has accumulated in the past four years, but which will not be available for publication until after the war. This in itself would restrain the more conservative and well informed from attempting such a review at present.

Notes on Books

The revised fourth edition of the pamphlet *Physical Exercises for Asthma*, approved by the honorary Medical Advisory Committee of the Asthma Research Council, has been published by H. K. Lewis and Co. at the price of 1s. A feature of this useful publication is the wealth of excellent photographs showing how the exercises should be done.

The 84th issue of the *British Journal Photographic Almanac* has just been published by Henry Greenwood and Co., 24, Wellington Street, Strand, W.C.2. It is edited by Mr. Arthur J. Dalladay, and contains 392 pages, including a 32-page pictorial supplement of photogravure reproductions of works by well-known photographers. It can be obtained from the publishers at 3s. 6d. (paper covers) and 5s. (cloth bound).

Preparations and Appliances

A SUBSTITUTE FOR THE FLOWMETER IN OXYGEN THERAPY

Lieut. MARTIN WRIGHT, R.A.M.C., and Prof. RONALD V. CHRISTIE, St. Bartholomew's Hospital, write:

A special Y-tube has been designed to enable two patients to be supplied with oxygen from one cylinder with certainty that each is receiving practically the same amount. If the rate of flow of oxygen to one of the patients is measured by means of a flowmeter, it can be assumed that the amount received by the other is nearly the same. This halves not only the number of flowmeters required, but also the number of pressure-regulating valves, which are even more expensive and difficult to obtain and quite impossible to improvise. This consideration is only likely to be of importance if poison gas is used in this country, when the demand for oxygen therapy may be great and the equipment required may exceed that at present available.

The Y-tube is an ordinary metal one of standard pattern, and in each upper arm is inserted a brass disk about 1/10 in. thick, and having a central circular orifice exactly 1/32 in. in diameter. These pinhole orifices provide a high resistance to the flow of oxygen, so that any resistance due to the method of administration or the length of connecting tubing is negligible compared with it. Using this Y-tube, two patients can be supplied with oxygen from one cylinder—one through a B.L.B. mask, which has negligible resistance, and the other through nasal tubes or a spectacle-frame mask, both of which have high and unpredictable resistances; and the flow to the two patients will not differ by more than 0.75 litre a minute at a flow of approximately 5 litres a minute to each patient. The pressure in the tube leading from the cylinder to the Y-tube will be about half of one atmosphere, but this is well within the capacity of any ordinary rubber tubing. The resistance produces a rather unpleasant hissing noise, but this is not likely to be a matter of importance in the circumstances under which the device is likely to be used. Another disadvantage is that, as two patients are being supplied from one cylinder, it may be necessary to check the rate of flow twice as often as with one patient, and if a pin-valve is used the rate of flow to each patient cannot exceed 5 litres a minute without producing irregularities in the flow due to freezing up of the valve. If a proper pressure regulator is used, however, these difficulties will not occur.

Instructions for Use.—(*a*) The lower limb of the Y-tube should be connected to the oxygen cylinder and the upper two limbs to the patients. (*b*) If a flowmeter is inserted between the Y-tube and one of the patients it can be assumed that the other patient is receiving practically the same amount of oxygen. (*c*) The rate of flow to each patient should not exceed 5 litres a minute unless a pressure-regulating valve is employed. (*d*) A pressure-regulating valve should be used, if available, for this reason, and also because otherwise the rate of flow will have to be checked frequently. (*e*) As the pressure within the tubing between the Y-tube and the cylinder is considerable the tubing may blow off; it should therefore be a good fit and be well pushed on to the stem of the Y-tube. (*f*) It is preferable that the same type of equipment for oxygen administration should be used with each patient, but it is not essential. (*g*) This Y-tube resistance should be employed only if a sufficient number of flowmeters are not available.

This Y-tube resistance is manufactured by the British Oxygen Company.

THE OUTBREAK OF SMALL-POX IN GLASGOW

SOME COMMENTS, A CRITICISM, AND A COMPARISON

BY

C. KILLICK MILLARD, M.D., D.Sc.

Ex-M.O.H. for Leicester

The outbreak of small-pox in Glasgow last summer, a report on which has been published in the *Journal* (1942, **2**, 627), was an exceptionally interesting one and calls for some comment. First, I would draw attention to the following points:

1. The outbreak probably would never have occurred but for the unfortunate mistake in diagnosing the first case—the electrical engineer on board the ship from Bombay—as one of measles. It is often difficult to distinguish the eruption of confluent small-pox (as this case was) from measles at the outset, while it is still in the papular stage, but after 48 hours, when the eruption becomes vesicular, there is usually no real difficulty. In this instance the diagnosis of small-pox was not made until after the arrival of the vessel at Glasgow on May 29, five days from the first appearance of the eruption.

2. The great majority of the ship's crew of over 200 had been recently vaccinated (in 1940). Not one of these contracted the disease. But of 37 members of the crew who had never been vaccinated, seven contracted the disease and one of them died. This is fairly conclusive evidence of the value of recent vaccination, and of the desirability of all those sailing to or from the East—the home of small-pox—being protected by it.

3. On the other hand, of two passengers who contracted the disease, one was a Polish officer aged 23, who had been vaccinated in infancy and again at the ages of 7 and 14—evidence that even three vaccinations, if not recent, are insufficient to protect from attack.

4. One of the "ship" group of cases was a boarding medical officer, aged 34, vaccinated in infancy but not since. It seems surprising that a medical man, specially appointed to board ships, and presumably for the purpose of looking out for cases of small-pox, should neglect to take the elementary precaution of adequately protecting himself by recent vaccination.

5. Not one secondary case of small-pox (apart from the "city" group) resulted from the 10 cases in the "ship" group which were infected from the original case—striking testimony to the efficacy of modern routine measures.

The "City" Group of Cases

There were 25 cases in this group, of which 21 were primary. Of the latter, all except the last three occurred in a close bunch in the space of 16 days. Allowing for variations in the incubation period, it is possible, the report suggests, that they were all infected in the short space of 10 days—June 9 to 19. This is a point of some importance, as I shall show later. It clearly points to a common infecting cause of strictly limited duration. When that cause, whatever it was, ceased to be operative the outbreak collapsed.

A remarkable feature of the "city" group was that in not one of the 21 primary cases was any clue discovered as to the source of infection. Their occurrence within a month of the arrival of the ship points, of course, to there having been some connexion with the ship cases; but, whatever its nature, it was not discovered. The authors of the report suggest that it was either (1) a "missed" case which left no trace behind, or (2) aerial convection from the small-pox hospital. They are inclined to favour the former because of the distance from the hospital. The four secondary cases in the "city" group were all direct contacts, and the fact that there were only four and that these gave rise to no further cases again indicates the remarkable success of modern preventive measures.

It is interesting to note that of the 25 cases in the "city" group, eight had never been vaccinated, 13 had been once vaccinated, three had been twice vaccinated, and one (a woman aged 49) had been vaccinated three times (1, 17, and 27 years). As is almost always the case, those patients who had never been vaccinated suffered more severe attacks than those who had.

The Mass Vaccination Campaign

We now come to a debatable and very important practical question, the mass vaccination campaign: Was it really necessary, and what effect did it have in controlling the outbreak? It is no light matter to inflict vaccination and all that it entails upon 500,000 persons—men, women, and children. The report states fairly the grounds which led the authorities to decide on June 28 (four weeks after the arrival of the ship) in favour of the step. The determining factor was, of course, the occurrence of the "city" cases. On the date in question there had been nine such cases in the last four days, scattered over different parts of the city, and with no clue as to the source of infection. A war was on, and it was thought that this might make routine measures less effective. Also, a widespread epidemic would seriously affect war production. The history of past outbreaks had to be taken into consideration too. It is easy to be wise after the event, and nobody could then foresee that the outbreak was going to collapse so suddenly. On the basis of accepted theories and teaching about small-pox and vaccination, very many people will undoubtedly acclaim the decision as a wise and proper one—including, of course, all those who think "the more vaccination the better." All the same, there had been only 15 cases altogether in the "city" group up to the date in question.

This much can certainly be said: a vaccination campaign on such a great scale, involving the rapid opening of 25 emergency vaccination stations in various parts of the city, the provision of the necessary staff, medical and lay, the arrangements with general practitioners for private vaccinations, the obtaining from the Government of the very large amount of calf lymph required, together with all the publicity and propaganda necessary to secure the co-operation of the public and to induce them to come forward and submit to vaccination, was a great administrative effort, calling for much energy and ability in its successful execution. It must have entailed a vast amount of hard work upon the staff of the Glasgow Health Department, under the leadership of their distinguished M.O.H., Sir Alexander Macgregor.

It is only natural, human nature being what it is, that, having made this great effort, much if not most of the credit for the sudden termination of the outbreak should be attributed by many people to what was undoubtedly the most outstanding and spectacular—as well as the most expensive—of the measures taken to control the outbreak. Thus the authors of the report, after explaining the considerations which led to the decision to initiate the campaign, and after referring to previous outbreaks which had lingered on for many months, say: "The present experience is in strong contrast; and it may be said that the people themselves, by taking timely advantage of the advice given and the facilities provided, stopped the outbreak at its start." And Sir Leonard Rogers, in an address entitled "The Efficacy of Vaccination against Small-pox" (*Medical Officer*, Dec. 5, 1942), reprints of which are being issued free by the Research Defence Society for distribution to members of local health authorities, says: "The remarkable accomplishment of the Glasgow health authorities in vaccinating 500,000, nearly half the total population, saved the situation for the time."

I hope that it will not seem grudging or ungracious on the part of one who has himself spent the greater part of his professional life in administrative public health work if I express a doubt as to whether all this mass vaccination had anything whatever to do with the sudden termination of the outbreak. Was it really a case of "cause and effect"? Was it *post hoc* or *propter hoc*? Would not the "routine" measures (as the report calls them)—i.e., the prompt isolation of every case as it occurred, the surveillance and vaccination of contacts, together with other incidental precautions—have been just as efficacious without all the great effort of the vaccination campaign?

The issue is of much practical importance because the example of a great city like Glasgow is likely to be followed by other local authorities faced with outbreaks of small-pox; and especially so if it is believed that it was the mass vaccination campaign which really saved the situation. Moreover, since any outbreak of small-pox, once it gets a firm foothold, is a danger to the entire country, the issue raises the whole question of our

national policy in regard to vaccination. Therefore the issue must be faced, and no personal considerations must stand in the way of free discussion.

The first point, then, which I wish to make is that although such a large number of persons were vaccinated in the Glasgow vaccination drive it only amounted to about half the total population; so that there were still some half-million persons who did not get vaccinated, and only a very small minority of these would be protected by recent vaccination already performed. Therefore there was an ample supply of susceptible material left for the infection to spread amongst, had it not been under control, and had the circumstances been otherwise favourable. But the chief argument against the campaign having had anything to do with the cutting short of the outbreak is to be found in a comparison of dates. If we refer to Table II in the report, which gives the date of eruption in each case, and if we allow 14 days for the incubation period, we shall find—excluding the last three cases of the outbreak (i.e., the case at the mental hospital, the contact case arising from it, and the patient who sickened in London)—that there was no case infected later than June 26 in the whole outbreak. But the decision to start the vaccination campaign was only taken on June 28, two days later. It is true that seven cases (three of these being contacts, and therefore under surveillance, and one the London case) developed the disease after June 28, but they were all infected before that date. It seems quite evident that the infecting cause, whatever it was, which led to the infection of the bunch of primary "city" cases during the 10 critical days, June 9 to 19, had ceased to be operative before the decision to start the campaign was taken. In other words, *the outbreak was virtually over before the vaccination campaign was started.* This is not intended as a criticism of the decision to launch the campaign, because, as we have already said, it was not possible on the date in question to foresee what was going to happen; but it *is* a criticism of the claim that it was the vaccination campaign which brought the outbreak so quickly to an end. I submit with confidence that the indications all point the other way. I suggest that if only the authorities had waited another week or two they would never have embarked on the campaign at all.

Experience of Other Towns

In order to view the Glasgow experience in proper perspective it is desirable to compare it with that of other towns where outbreaks of small-pox have occurred but where recourse was not had to mass vaccination; and I will take the case of Leicester, of which I can speak from personal experience.

In the year 1902, when there was a good deal of major small-pox in the country, the disease was introduced into Leicester on eight occasions. The first seven importations were successfully controlled, and only nine secondary cases resulted, making 16 cases in all. The type of disease was severe, and five of them proved fatal. Then at the end of the year a tramp, vaccinated in infancy, walked to Leicester and was admitted to the workhouse. He began to sicken the following day with a mild modified attack, which unfortunately was diagnosed as chicken-pox. No precautions were taken, and for six days he was not isolated, living in fairly close contact with 60 other inmates. Under these circumstances it is not surprising that 20 further cases occurred in the institution before the outbreak was suppressed. It is quite possible that the infection leaked out into the town, for a small number of cases kept cropping up throughout the first quarter of 1903. And then came the remarkable outbreak which I wish to set against the recent one in Glasgow.

The Leicester Outbreak, April, 1903*

On April 15, without warning, as there had been practically no cases for a fortnight, 4 cases were reported in various parts of the town. These were followed by 2, 2, 5, and 5 on succeeding days, and then no fewer than 14 cases occurred in a single day. For the first four weeks the figures were 53, 21, 34, and 48. What made the outbreak especially disconcerting was that in scarcely any of the cases could the least clue be obtained as to the source of infection, and no common factor in any way connecting the cases could be discovered. Thus in the first 11 days, before secondary cases began to occur, there were 65 cases, 62 of which were untraced, and these were scattered over two-thirds of the town, in 61 houses in 58 streets. Of the patients 37 worked in 32 different factories or workplaces; and 14 school children were attending 11 different schools. Bearing in mind that for 16 years Leicester had openly revolted against vaccination, that all prosecutions for default had entirely ceased and the compulsory vaccination law was virtually a "dead letter," and that the amount of vaccination performed had been almost negligible,† it must be admitted that apparently the circumstances attending this outbreak were exceedingly favourable for a devastating epidemic. Undoubtedly many people thought that Leicester's hour had now come; and some even considered that it might not be altogether a bad thing if the town were taught a salutary lesson. But it was not to be. After the first four weeks the outbreak began rapidly to decline, the number of fresh cases each week falling from 48 to 22, 14, 10, 4, 2, 1, and a fortnight later none was reported. Even a well-vaccinated town could hardly have done much better. The total money cost of the outbreak was estimated at under £3,000.

The Cause of the Leicester Outburst

The only two possible explanations, as at Glasgow, seemed to be: (1) "missed" cases, of which absolutely no trace was discoverable; and (2) aerial convection from the small-pox hospital. When the outburst began 20 convalescent cases were under treatment and the prevailing winds were favourable; but there was no special incidence on the side of the town nearest to the hospital. Also, the distance of the hospital—a mile from the outskirts—seemed against the convection hypothesis; but on the whole it seems the most probable explanation. But whatever the cause, it ceased to operate—as was the case at Glasgow—and then ordinary routine measures were effective in preventing further spread. Fortunately the death roll was very much smaller than might have been expected, and the unvaccinated child population escaped much more lightly than was feared would be the case. There was only slight evidence of "picking out" the unvaccinated.

The Measures Adopted: No Vaccination Campaign

The measures taken to deal with the outbreak were the routine ones now universally adopted. As M.O.H. I personally visited every case, confirmed the diagnosis, arranged for immediate removal to hospital, and used my best persuasive powers to induce other inmates of the household to get vaccinated at once. Usually I vaccinated them myself on the spot. No appeal was made to the general public to get vaccinated, and there was an entire absence of alarmist posters urging vaccination. The local press co-operated by not "writing up" the outbreak and by avoiding sensational headlines; consequently, business went on as usual and there was little interference with the trade of the town. Where it was thought desirable that contacts should not return to work, compensation was paid to them for loss of wages. One thing I think may safely be said: if Leicester had gone in for a vaccination campaign it would certainly have been hailed by many as a triumph for vaccination and would have been given the credit of having saved the town from a great disaster.

Just one thing remains to be added. While I think that the Glasgow vaccination campaign was unnecessary, I can imagine circumstances in which such a campaign would be called for—and that is, if a serious epidemic of major small-pox were really to get out of hand. Such an occasion happened at the town of Dewsbury in 1893 and again in 1894, and in the notorious Gloucester epidemic of 1895. At both these places there was a complete breakdown of the ordinary routine measures for dealing with small-pox; the local authorities were quite overpowered, and they were left to their fate by the old Local Government Board, so far as giving them any practical assistance was concerned. But this was half a century ago, and the likelihood of such a breakdown occurring to-day, with our so greatly improved health organization, both local and central, is comparatively small.

* The abbreviated account which is here given is taken from my book, *The Vaccination Question in the Light of Modern Experience*, H. K. Lewis Ltd.

† The number of unvaccinated children in the town at this time would be about 70,000.

HEALTH EDUCATION AND VENEREAL DISEASES

At a Conference held last week by the Central Council for Health Education to discuss the educational campaign against venereal diseases, Dr. CHARLES HILL, chairman of the Central Council, said there was general agreement that the problem could not be effectively tackled until the curtain of secrecy which surrounded it was lifted. It was not enough to disseminate facts about venereal diseases, but a method and policy of dealing with the problem must be formulated, and a frank discussion on that subject was the purpose of the Conference.

The MINISTER OF HEALTH (Mr. Ernest Brown), after welcoming the delegates, said that Defence Regulation 33B, which was deliberately limited in scope, left unchanged the general voluntary basis of treatment. It was intended, he said, to stop a gap in the voluntary system which had existed for some time but had assumed much greater seriousness during the war. The regulation was a necessary wartime measure in the interests of public health, but it was only one item in the Government's programme for checking the increase in venereal diseases, and did not in any way reduce the need for a widespread intensification of education.

The Primate's Opposition to 33B

The ARCHBISHOP OF CANTERBURY, who is president of the Central Council, began by making clear his personal position. Early last autumn when he accepted the invitation to become president he was aware that one of the most immediate concerns of the Council would be educational propaganda on this subject in which he hoped he could take some useful part. When Regulation 33B appeared he was greatly disquieted, and submitted to the Minister his resignation of the presidency, saying that he could not hold the office and keep silent, while at the same time it seemed unfair to him to use the position as a vantage ground for criticizing the regulation. But the Minister asked him to retain his office while being free to criticize.

Venereal disease, said Dr. Temple, was communicated almost —not quite—entirely in illicit sexual intercourse. If men and women would abstain from fornication the problem confronting the Minister of Health would be negligible. The minute residuum would be a purely medical problem. But the evil in its present bulk was a moral problem. The object first to be aimed at was the practice of continence. All that could be done by the promotion of a healthy family life, by the influence of school, and by the attitude of authorities should be done. It was a fundamental principle that Governments affected the conduct of citizens far more by the principles implicit in their acts than by the requirements of legislation or the severity of penalties. But in dealing with venereal diseases the Government had systematically ignored this principle. Thus, in the Army instruction was given to recruits in the use of prophylactics, the implication being that the authorities expected a considerable number to practise fornication. He believed that this method by its inevitable suggestion caused an increase of promiscuous intercourse and therefore of the disease which it was designed to prevent. The moral problem was treated as if it were primarily a medical problem. His fundamental objection to 33B was on the same ground. Its existence tended to create the suggestion that infectious contacts were being dealt with, and that the concern of the Government was to make fornication medically safe. But to make venereal diseases compulsorily notifiable would be far worse than the regulation. It would lead to concealment of symptoms and would reduce the numbers seeking early treatment. His Grace mentioned seven points which he thought should be stressed in any instruction in the subject, the first being the sacredness of sex and the second the duty and possibility of chastity.

In the general discussion several speakers, medical and lay, challenged the Archbishop's point of view. Bailie VIOLET ROBERTON, a member of Glasgow Corporation, who spoke on the problems of a large port, said that she had been charged to say to the Minister that in her city they welcomed unreservedly his new measures; they congratulated him on the courage with which he had tackled this problem, and while they knew there were difficulties in administration, they felt that a definite step forward had been taken.

A Recantation

The first medical speaker, Dr. OTTO MAY, supported the Archbishop. He agreed that the medical part of the problem was subsidiary. If there was no promiscuity there would be no venereal disease. One of the "ten points" in the advertisement campaign declared that abstinence from sex irregularity was never harmful. It was a difficult topic, but personally he thought there was a great deal of exaggeration in the talk about a primitive urge. Mankind had learned to discipline a good many of its primitive urges in the course of evolution. One important point was the disharmony between the age of sexual maturity and that of economic maturity; the Beveridge plan would make early marriage more easy. But however much the importance of total abstinence from extramarital intercourse was taught it was useless so long as every possible incentive to the opposite was left to tempt young people, especially street prostitution. It might be that in some cases abstinence was a cause of neuroses and repressions, but it was necessary to educate for the majority, not for the medical exceptions. These cases might be tackled in the consulting room, but should not be talked about on the platform. Dr. May added that twenty years ago he wrote a book on prevention of venereal diseases in which he advocated the teaching of personal prophylaxis as an essential part of the campaign, but he was older now and had come to the conclusion that the advocacy of prophylaxis implied a sanction for misconduct which would be much more powerful than its deterrent effect.

Dr. MAITLAND RADFORD (M.O.H., St. Pancras) said that the difference between the secular and the religious approach did not constitute a barrier; the two different points of view supplemented each other. With great respect, he thought that a false antithesis had been put before the Conference. His Grace had said that it should be part of the educational campaign to teach the sacredness of sex, but it was untrue to represent it as a fact that sex was universally regarded as being sacred. The secular approach to sex allowed a wider latitude in sex behaviour than did the religious approach, and it did not seek to impose a uniform pattern. He was sure, however, that those who upheld the different viewpoints could work together. The differences between them were there and should be stated, but there was a common working platform. Whatever the formula accepted, irresponsible sexual behaviour was to be deplored.

Various Methods of Educational Approach

It would give a wrong impression to suggest that the Conference was wholly occupied with this controversy. Many excellent contributions were made on different educational aspects. Miss MANCHEE, chief almoner at St. Mary's Hospital, spoke of the need for the social worker at the V.D. clinic. Doctor, nurse, and social worker, she said, made the ideal triple partnership. If a clinic was too small to engage the whole of an almoner's services they should be shared with some other department of the hospital. Lord WINSTER spoke on work among seamen. The ports, he said, represented perhaps the main problem. The majority of cases occurred among foreign seamen. He regarded it as one of the good things which had come out of this war that the harmful and unhealthy atmosphere of fear, mystery, and hypocrisy which had prevailed too long in regard to these diseases was being dispelled. Dr. O. HAMILTON WILKIE, director of V.D. services, Leicester, described the scheme in operation in his city and county, in particular an extensive education campaign during which he had given 180 lectures. Dr. T. O. GARLAND complained that many pamphlets on health education, while they mentioned venereal diseases, did not mention the symptoms by which they could be recognized, and in none he had read was any information given on prophylaxis. There was some queer intellectual kink which made it appear right to teach people how to be treated, but wrong to teach people how immediately to disinfect themselves.

At the end of each of the two sessions many joined in a general discussion, but no resolutions were put, the Conference being for the exchange of opinions and experience.

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PARLIAMENT AND THE BEVERIDGE REPORT

Now that both Houses of Parliament have discussed the Beveridge report and the Government has explained its attitude to it, we may examine the situation in relation to the recommendation of the Council of the B.M.A. to the Representative Body. It will be recalled that the Council recommended that the Association should be willing to co-operate in the preparation of a scheme for comprehensive health and rehabilitation services available to all members of the community, provided three conditions were fulfilled. The first condition was that the Government should accept the assumptions of the report and should put into operation the proposals of the report taken as a whole. The focus of criticism of the Government's statement is on the fact that it has not decided immediately to act upon Sir William Beveridge's proposal that there should be a Ministry of Social Security. The failure to do this, or at least to appoint a Minister of Social Security, has been criticized by members of all political parties and has led to the general impression that the Government is planning to avoid action on the report as a whole. This is relevant to the attitude the profession will adopt to the proposals for a health service. In his exposition of the attitude of the Government, Sir John Anderson stated that it agreed that the administration of the insurance side of the entire social security scheme should be consolidated into one organization. It was a question whether such a unified organization should be a new Ministry or some kind of statutory board. Whatever it was, it would be set up as soon as legislation introducing the new scheme had been passed in Parliament. In the meantime it might be desirable, Sir John continued, to create the nucleus of the new organization now, to work with the Departments concerned in bringing the project as a whole into legislative form. This nucleus staff would be responsible to the Minister without Portfolio (described by Viscount Samuel in the Lords debate as "the Minister with Pigeon Holes," and by Archbishop Lord Lang as "becoming a sort of Mother Hubbard"). The general lines of development of the social insurances in the Beveridge report were those which the Government would wish to follow, and in considering its future financial commitments the Government's attitude was: "Let us not be deterred by doubt as to finance from putting our plans into shape." It cannot be denied, however, that Sir Kingsley Wood's speech implied that there were doubts in the Government's mind as to its financial ability to put plans into action. The Government, according to Sir John, had looked at the scheme as a single, coherent plan of social insurance, and the various parts of it quite clearly hinged together. The Government, too, accepted Sir William's three assumptions. On the evidence before them the Representative Body will have to determine whether the Government has decided "to accept the assumptions of the report and to put into operation the proposals of the report, taken as a whole. . . ."

Before referring to the other two provisos laid down by the Council, we may review briefly what appears to be the Government's attitude to Sir William's Assumption B. In the House of Lords the Lord Chancellor made the following statement: "The Government had every intention of carrying out the comprehensive health service." This, Sir John Anderson observed, implied the reorganization of the existing services—National Health Insurance, the general and specialist health services of local authorities, major hospital and institutional services, and so on. By "comprehensive" he meant first a service covering the people as a whole and, secondly, the inclusion of institutional treatment. The object was to secure, through a public, organized, and regulated service, that every man, woman, and child who wanted it could obtain the whole range of medical advice and attention. The fullest use was to be made of existing resources, and the idea of the new service must be one of co-operation of public authorities, voluntary hospitals and other voluntary agencies, and the profession towards one common end. There must be no doctrinaire scrapping of good existing resources, nor must there be overlapping. The responsibility for seeing that in any area the service was full and efficient must be on one ultimately responsible to public authorities. Experience justified putting this ultimate responsibility on to local government machinery. Perhaps it was most important of all, he said, to maintain to the greatest possible extent the principles of free choice of doctor and of the family-doctor relationship as the background of general medical practice. There should be the least possible disturbance of existing relationships between doctor and patient. In the view of the Government this need not be inconsistent with the principles of group public practice at well-equipped clinical centres. The third proviso of the Council—namely, that those who wanted to could make private arrangements for medical treatment—is satisfied by the unequivocal statement that the Government has no intention whatever of forcing the new services on those who wish to make private arrangements. The Lord Chancellor said: "As we conceive the scheme it is not a scheme that will automatically bring to an end a medical man's private practice, and, as we conceive it, it is not a scheme in which the voluntary hospitals will have nothing to do." In the same way both Sir John Anderson and Mr. Herbert Morrison made it clear that there was no intention on the part of the Government to "destroy the institution of voluntary hospitals."

The most important of the Council's conditions for co-operation was "that the character, terms, and conditions of the medical service are determined by negotiation and agreement with the medical profession." The details of the new scheme, Sir John Anderson said, would be worked out by the health departments with the help of other main organizations, local authority, voluntary, or professional, on whose active participation the success of any new organization must depend. The Ministry of Health has already been conducting discussions with the British Hospitals Association, and it has just asked the B.M.A. to lead a deputation representing the various branches of medical interest, for preliminary discussions, on March 9. There would, therefore, seem to be little ground for the suspicion on the part of some of our correspondents that a Machiavellian plot is being hatched by a Government which intends to keep the medical profession ignorant of its intentions until the last moment. So long as there are representation of the different interests involved, full freedom of discussion, and give-and-take in negotiation, we hope that those doctors who must perforce remain onlookers will give their wholehearted support to the various medical men and bodies who are determined to see that professional interests are maintained and promoted so long as they do not hinder the provision to the public of all those facilities that make for the promotion of health, the

prevention of disease, and the care of illness. It should be understood that neither the B.M.A. deputation nor any other professional group has any power to commit the medical profession to any form of service. The results of all discussions will be referred back for decision to appointing bodies—for example, in the case of the B.M.A. this includes consideration by the Divisions and decision by the Representative Body. In the House of Lords Lord Dawson voiced the feelings of most medical men when he said that it was not to be expected that the medical profession would be moved about and take its orders from the laity. Under the authority of Parliament the profession would wish for self-determination, and this it will seek.

SPLENOPATHIC LEUCOPENIA

In a recent publication Wiseman and Doan[1] describe a syndrome which they call primary splenic neutropenia, and record five cases of their own and two others from the literature which they believe to be the only published cases of this disorder. The features common to all seven cases were severe leucopenia, splenomegaly, and an over-active bone marrow. In each case there was complete relief of symptoms after splenectomy, and the number of circulating granulocytes immediately returned to normal. This happened in spite of the fact that there had been no response to liver therapy, pentnucleotide, and blood transfusions. The authors compare the disease with congenital haemolytic anaemia and essential thrombocytopenic purpura, and believe that all three conditions are caused by an abnormality of the reticulo-endothelial cells in the spleen, which is responsible in this syndrome for an excessive destruction of the granular leucocytes. They find support for this theory in the appearance of the splenic pulp after operation, scrapings of which, stained supravitally, showed a large number of phagocytic clasmatocytes containing neutrophils and occasional red blood cells and normoblasts. They also state that the marrow showed a specific myeloid hyperplasia, but it is not easy to be convinced of this from the cell counts given with the case reports. The marrow was described as being unusually cellular, but there was a wide range in the ratio of myeloid to erythroblast cells in the different cases. The findings certainly offer a contrast to the maturation arrest of the leucocytes in toxic agranulocytosis, but they do not differ materially from the changes observed in many haemolytic disorders.

The authors recognize that in their patients the granulopenia was always accompanied by some degree of thrombocytopenia and haemolysis, and a detailed examination of the case reports shows that in each of the five there were a fall in the number of platelets and evidence of considerable red cell destruction with a corresponding increase in erythropoiesis, normocytic anaemia, reticulocytosis, and raised icteric index. It is difficult to see why it was necessary to include a case of thrombocytopenic purpura in a new disease group. True there was a moderate leucopenia (3,400 to 5,100 per c.mm.), but this is known to occur in some cases of essential thrombocytopenia, and in every other respect, including age and sex, the symptoms were typical of this disease. Even the bone marrow showed a myeloid : erythroblast ratio of only 1 : 5. The authors say that in their experience the spleen in uncomplicated thrombocytopenic purpura is never enlarged, either clinically or at operation, but this is not the experience of most haematologists.

Although Wiseman and Doan are at some pains to stress the recent recognition of this syndrome, it is only fair to point out that the conception has been familiar to European haematologists ever since Frank's[2] classical article on aleukia in 1925, and such cases have been successfully treated by splenectomy. Their infrequent occurrence sufficiently explains the absence of published accounts. Frank called the condition "splenopathic leucopenia," for he believed that the spleen was responsible for an excessive destruction of the circulating leucocytes and that the changes in the bone marrow were secondary. He suggested that in all probability this was merely an exaggeration of one of the normal functions of the spleen. He recognized the value of splenectomy, and observed the close relation of the syndrome to essential thrombocytopenia and other diseases in which splenomegaly is accompanied by leucopenia. In particular he cited the leucopenia found in kala-azar, chronic malaria, typhoid fever, in the spleno-mesenteric type of Hodgkin's disease, and in Banti's disease. While clearly aware of the difference in the primary noxious agents, he believed that the resultant granulopenia was due to a specific effect of the splenomegaly, which was similar, if not identical, in the separate diseases, and which could occur in cases where there was no recognizable aetiological cause. He stated that it was possible that splenopathic leucopenia was really a terminal state of a series of transitional phases. The other circulating blood cells were also affected, and in certain instances the abnormal destruction of the platelets might exceed the leucopenia. This conception of the splenic origin of leucopenia is very similar to the one reached by Wiseman and Doan, but it brings out the point that common conditions should be excluded before diagnosing such a rarity as primary splenic neutropenia. Splenomegaly and leucopenia are often the initial symptoms of leukaemia and the progressive hyperplasias of the reticulo-endothelial tissues, and it is advisable to make careful investigation and to observe the natural history of the illness before deciding that the symptoms will be relieved by splenectomy.

[1] *Ann. Intern. Med.*, 1942, **16**, 1097.

[2] *Die Krankheiten des Blutes und der Blutbildenden Organe*, edited by A. Schittenhelm, Berlin, 1925, **2**, 432.

INFECTIOUS POLYNEURITIS

During and immediately after the last war 18 cases of polyneuritis, recurring endemically, were described under various titles by British, French, and American authors.[3 4 5] In this country it was known as acute infectious polyneuritis and was chiefly sporadic, although often several cases occurred at the same time in a comparatively small district. In France, Guillain and Barré[6] found that in all cases the cerebrospinal fluid showed high protein in association with a low cell count, and the name Guillain-Barré syndrome has therefore been generally adopted in that country. Most of the recent literature has come from the United States, and in a review of the subject Roseman and Aring[7] have added 16 fresh cases, in 3 of which post-mortem studies were made.

The clinical symptoms are characteristic enough. The disease, which is most often seen in the higher age groups, appears to follow a mild influenza-like infection, usually at an interval of one to three weeks. The most striking initial symptom is pain in the back and legs, often with numbness and tingling. Paralysis of a lower motor neurone type, with a varying amount of anaesthesia of the glove-and-stocking type, sets in more gradually or follows the subjective symptoms at an interval of some days. Contrary to the general opinion, the facial nerves are involved

[3] Holmes, G., *British Medical Journal*, 1917, **2**, 37.

[4] Casamajor, L., *Arch. Neurol. Psychiat.*, Chicago, 1919, **2**, 605.

[5] Kennedy, F., ibid., p 621.

[6] *Bull. Mém. Soc. des Hôp. Paris*, 1916, **40**, 1462.

[7] *Medicine*, 1941, **20**, 463.

in the majority of cases, and all the other cranial nerves may also be involved. Paralysis of accommodation and of the palatal muscles may make it difficult to distinguish the condition from diphtheritic paralysis, but the cranial nerves are usually affected after the lower limbs. The rectal and vesical sphincters are generally spared. Pyrexia is infrequent, but the pulse rate is often increased. It is the experience of American as well as of English physicians that artificial respiration rarely saves life; death occurs from respiratory paralysis in from 14 to 40% of cases. The increase in protein in the cerebrospinal fluid, though considered by Guillain and Barré as a point of major diagnostic value, has not been constant, especially in the initial stages of the disease. It is, however, of value later, and has been found to persist for many months, and even up to 5 years in some cases. No treatment for the disease is known, and bacteriological and experimental studies have shed no light on its causation.

The pathology of the disease, as described by Roseman and Aring, is not limited to the nervous system, although that has been most studied. The changes are most evident in the peripheral nervous system, both somatic and sympathetic, and include oedema of nerve roots and trunks, with foci of phagocytic cells and rarer lymphocytes, hyperplastic changes in the sheath of Schwann, irregular swellings and corkscrew formations on the axis cylinders, and degeneration of myelin sheaths. The dorsal and sympathetic ganglia show some degeneration with phagocytosis of some nerve cells, oedema of the ganglia, and increase in interstitial cells. Chromatolysis of cells in the anterior horns and the cranial nerve nuclei and minor changes in the nerve cells of the cerebrum and cerebellum are also seen. In the hearts of two fatal cases there was diffuse interstitial infiltration with polymorphonuclear and mononuclear cells; in one case necrosis of scattered muscle fibres had occurred, and in the other there was also local inflammatory infiltration of the wall of a coronary vessel and focal phlebitis of a pulmonary vein. In all three cases on which post-mortem examinations were carried out there were focal necrosis of liver cells with cellular infiltration as well as portal infiltration, and degeneration of the suprarenal cortex with accumulation of mononuclear cells. The authors point out that a pantropic virus would not be expected to produce these changes. In a more recent fatal case in a child of 4 years Aring and Sabin[8] found similar changes in the spinal cord and nerve roots. Animal experiments with the material from this case were also negative.

Though these studies do not point to any definite aetiology they show acute infectious polyneuritis to be a general disease and not merely one of the peripheral nerves.

STANDARDIZATION IN COMMUNAL FEEDING

While the Minister of Labour is dealing with wages and conditions of employment in the catering trade he might well have gone further, perhaps in association with his colleague Lord Woolton, and have set up some central body to prescribe standards of food values and of hygiene and cleanliness in the preparation and service of food to be observed by all catering concerns, whether in public or private hands. The matter is becoming more important because of the large numbers of people who now have their principal meals away from home, either on account of the necessities of their employment or education or to relieve domestic difficulties. Rationing and limitation of choice, lessened palatability of foods, and narrower margins of nutritional values render all the more important some central supervision of the quality and the preparation of food. Certain standards of cleanliness and care in the kitchen and service staff should also be exacted.

It is quite possible that community feeding, having proved its convenience and economy, may persist and develop in this country after the war. Some will object that this will mean the further disintegration of the family unit, but it is a hard saying that to compel the housewife to steamy and greasy culinary employment for several hours of every day is a means of safeguarding the family; it may easily have had the opposite effect. If the social meal has come to stay, the experience in Soviet Russia, where communal feeding has been tried out on a large scale, may be worth studying, while making allowances for the different national economy and way of life. Some interesting and (so far as possible) up-to-date information on this subject has been collected by F. Le Gros Clark and circulated as a brochure under the title *Soviet Forms in Communal Feeding*.[1]

In Soviet Russia collective feeding is part of a State-directed policy. It is considered that centralized food depots are likely to provide food more economically and with better conservation of nutritional values than a multitude of domestic kitchens. The number of kitchen depots, dining-rooms, buffets, and cafés within the network administered by the Division of Public Feeding—a special branch of the Commissariat for Internal Trade—is estimated at about 60,000, and in addition there are many thousands of canteens and dining establishments under co-operative control. The kitchen depots are a noteworthy feature of the Russian arrangement. There is said to be one of these in each of the 27 districts of Moscow, and a similar number in Leningrad. They are centralized depots in which the food is prepared in all but its final stages—plucked, shredded, sliced, minced, as the case may be—and then transported in containers to the canteens. The final processes of cooking and service are under the control of the factory or school management. A point of importance is that the salvage of waste is largely concentrated in these preparatory plants.

The standards of efficiency in the canteens under State direction are primarily laid down by the Institute of Nutritional Research in Moscow, and cover not only the food supplies, but the kitchen space, the state of containers and crockery, the clothing and cleanliness of the staff. Many kitchen depots are equipped with chemical and bacteriological laboratories where the samples can be analysed. In the school canteens the equipment, personnel, and material are guaranteed by the Division of Public Feeding. A number of parents are on duty to help in the preparation of the school meals, to inspect the food and kitchens, and to assure themselves that the quality and quantity of the helpings are up to the standard prescribed, with an appeal to the school doctor in case of doubt. It is also the duty of the doctor to arrange classes on food values for both children and parents.

An interesting feature of the Russian system is the special diets for workers suffering from various complaints. The number of workers receiving special diets in factory canteens averages 600,000. Grants are allocated to the amount of 110 million roubles a year from the social insurance fund to enable the consumers to meet the difference between the cost of these special diets and the ordinary canteen meal. The largest number of special diets cooked in any one canteen is eleven; in the majority of canteens it is four or five. In the mines the dietetic canteens are open for twenty-four hours a day to supply all shifts. As a result of the special diets it is said that in one district of Moscow where inquiry was made absences from work had

[8] *Arch. Neurol. Psychiat.*, Chicago, 1942, **47**, 938.

[1] Published from 6, East Common, Harpenden, Herts. (1s.; post free, 1s. 3d.)

diminished by 50% and improvement in health was noted in 85% of the workers concerned. The best results are said to be obtained in cases of gastric catarrh.

ENDOBRONCHIAL TUBERCULOSIS

Five years ago we drew attention[1] to three papers[2 3 4] in which the earlier clinical manifestations of tuberculous tracheobronchitis were first described, and its importance as a complication of parenchymal tuberculosis was stressed, as well as its relative frequency. The outlook for patients with this complication was then thought to be very gloomy indeed, particularly as collapse therapy was deemed to be contraindicated for most of them. Opinion in this respect has changed, as is obvious from a series of communications presented in 1941 at the annual meeting of the American Association for Thoracic Surgery. Reviewing 100 cases, J. M. Chamberlain and J. Gordon[5] point out that endobronchial tuberculosis tends to run a self-limited course, and therefore the "healed" fibrostenotic stage is often seen in the presence of an uncontrolled parenchymatous lesion. Moreover, the stenosis itself is consistently followed by a series of irreversible complications—namely, emphysema, atelectasis, and bronchiectasis. It is therefore essential to recognize the bronchial lesion at an early stage by bronchoscopy, and then reduce the size of the pulmonary bed before chronic stenosis occurs. Pneumothorax is considered to be dangerous when the bronchial disease is severe and the large bronchi are involved, but the results from thoracoplasty have been good. Local application of silver nitrate to the bronchial lesion is often beneficial as an ancillary measure.

W. M. Tuttle, E. J. O'Brien, J. C. Day, and F. J. Phillips[6] have studied 92 patients with ulcerative or healed bronchial stenosis. All patients have been observed for at least one year: 32% are dead, and 33% are still considered "unstable." Sixty-nine of the patients showed ulceration of the lesion when first seen and were treated with 30% silver nitrate; in 70% of these the lesion healed. These authors confirm the relative value of pneumothorax and thoracoplasty in the presence of endobronchial tuberculosis. Pneumothorax was "adequate" in only 12 of the 47 patients in whom it was induced; the incidence of empyema and unexpanded lung was 32% and 47% respectively. Thoracoplasty yielded much superior results. It was carried out in 34 patients; in 20 the disease is now considered to be arrested, apparently arrested, or quiescent. Only 5 thoracoplasty patients are dead (14.7%), as contrasted with 13 of the 47 pneumothorax patients (27.6%).

J. Alexander, G. N. J. Sommer, and A. A. Ehler discuss in detail[7] the effect of thoracoplasty and pneumonectomy upon pulmonary tuberculosis complicated by stenotic tuberculous bronchitis. They conclude that there are in such patients certain clear-cut indications for, and contraindications to, both thoracoplasty and pneumonectomy, and that for some patients neither procedure can be used safely. When no contraindication exists to either operation, thoracoplasty is the better operation because the mortality is much lower and the percentage of apparent healing of the tuberculosis is much higher. Indications for lobectomy are also given, but the authors stress that in their opinion the indications for pneumonectomy or lobectomy for tuberculosis are rare: they have performed the former operation only twice, and the latter three times. They give the results among 38 patients with stenotic tuberculous bronchitis. It appears, not only from the papers referred to above, but also from the subsequent discussion[8] at the annual meeting, that thoracoplasty is the therapeutic measure of choice for such patients, provided certain contraindications are kept clearly in mind; and that lobectomy or pneumonectomy may occasionally be the better operation. Finally, we should like to draw attention to a recent paper by O. C. Brantigan, R. Hoffman, and D. F. Proctor,[9] in which the authors show that endobronchial lesions may, after closed pneumonolysis, produce a check-valve type of obstruction that results in rapid re-expansion of the lung and loss of the pneumothorax space; and that under similar conditions complete occlusion of the bronchus may occur and result in atelectasis. The authors advise routine bronchoscopy before adhesion-cutting with local treatment of any endobronchial lesion discovered.

1 *British Medical Journal*, 1938, **1**, 239.
2 *Amer. J. med. Sci.*, 1937, **193**, 515.
3 *J. thorac. Surg.*, 1937, **6**, 561.
4 *Amer. Rev. Tuberc.*, 1937, **36**, 8.
5 *J. thorac. Surg.*, 1942, **11**, 292.
6 Ibid., p. 299.
7 Ibid., p. 308.
8 *J. thorac. Surg.*, 1942, **11**, 321.
9 *Amer. Rev. Tuberc.*, 1942, **45**, 477.

FOOD YEAST

Considerable progress has been made in knowledge of the B vitamins, and as their activity is interrelated it may be desirable to administer all of them for either preventive or therapeutic purposes. Unfortunately in wartime the richest source of the B vitamins—namely, animal protein (meat, especially liver; eggs and milk)—is in short supply, and plant protein has therefore to be utilized instead. Plant protein, however, is deficient in some of these vitamins although it is rich in others, and recent research work has been directed to supplying those that are missing. It is known that micro-organisms build up all the B vitamins, and in addition that the nutritive value of the protein they contain is as high as that of animal protein. With these two facts in mind workers at the Chemical Research Laboratory of the Department of Scientific and Industrial Research set about selecting a micro-organism, from the many known to exist, which could be produced in bulk from the cheapest raw materials, would reproduce rapidly, and be harmless to man. Such an organism has been found in the product of waste molasses to which nitrogen in the form of ammonia or ammonium salts has been added. The product, known as "food yeast," contains as much as 50% of high-grade protein, approaching meat and fish protein in nutritive value. Of the four chief B vitamins it contains in microgrammes per gramme: aneurin 20, riboflavin 60–80, pantothenic acid 60, and nicotinic acid 400–450. When dried it is a flaky substance, light straw in colour, and has a slightly meaty taste. It can be mixed with water or milk, added to soups and stews, and can be incorporated into biscuits and into flour for the daily loaf.

It is not, however, proposed to manufacture it in this country at present, except for experimental work, but plant is being sent to Jamaica, where the first large-scale experiment is to be carried out, and towards which a preliminary Exchequer grant of £25,000 has been made. "Food yeast" will thus not be available here for some considerable time, but it is estimated that it could be supplied at 6d. a pound, and that half an ounce daily would ensure a sufficiency of the B vitamins. This product offers a solution to one of the problems which will face the United Nations after the war—namely, that of supplying large populations, whose animal stock has been depleted, with a food containing a high concentration of the vitamin B complex and a high-grade protein. It will also be of value in tropical and subtropical countries, where native diets are invariably lacking in these constituents.

AWARDS FOR BRAVERY AND DISTINGUISHED SERVICES IN BURMA

Dr. JEHANGIR ARDESHIR ANKLESARIA, port health officer, Rangoon, Dr. DOUGLAS JAMES LAPPING, medical officer, Jokai Tea Company, Panitola, Assam, Dr. JAMES WALLACE LUSK, medical practitioner, Rangoon, and Dr. ARTHUR MOBSBY, assistant district health officer, Mandalay, have been appointed M.B.E. (Civil Division), and Mr. AMAR SINGH GILL, sub-assistant surgeon, Mandalay Hospital, has been awarded the G.M., for bravery and distinguished services in the Burma evacuation. The official citations in a *Supplement* to the *London Gazette* dated Jan. 29 read as follows:

"Mr. Anklesaria went to Monywa, the base camp for the Chindwin evacuation, on special anti-cholera duty. He worked there for nearly two months in very trying and difficult circumstances and, by his outstanding devotion to duty and marked administrative ability, dealt very successfully with a serious epidemic outbreak of cholera, which at one time threatened to close down the Chindwin entirely as an evacuated route."

"When air evacuation from Myitkyina to Dinjan started, with only the briefest of notice, there was near the aerodrome a military hospital of 50 beds only. In a few days Dr. Lapping organized hospitals with a capacity of 650 beds and mobilized staff ready to deal with 1,800 wounded soldiers who were flown to Dinjan within a period of three weeks. Following on this, there set in the refugee evacuation through Ledo which, owing to the severity of the conditions and the climate, produced a high percentage of seriously sick. These also were taken care of by the organization built up by Dr. Lapping. A difficult situation was promptly met and it was due to the resource and organizing ability of this doctor that what might have been a calamity was in fact averted."

"Dr. Lusk took over at a moment's notice the Contagious Diseases Hospital in Mandalay, which contained over 200 cholera patients and was staffed by only one Indian doctor, one nurse, and one ward boy. He then took charge of the medical arrangements of all the evacuation camps in Mandalay and, although the commercial centre of the town was deserted and in many places burning, he managed to obtain adequate medical stores to stock all camps and even to send supplies to other camps up country. In a little over two weeks he managed to reduce the daily number of deaths in the Mandalay camps from 500 to less than 20. On April 26 he was the only civilian doctor remaining in Mandalay, and attended to all the casualties at the foreshore resulting from the air raid on that day. He worked without ceasing for 18 hours, and on the next night accompanied the wounded to Katha. He continued his services to evacuees along the railway line and from Indaw to Pyinbon, and drove lorries distributing rice to refugees on that route. Throughout the campaign Dr. Lusk showed courage, endurance, and organizing ability."

"Dr. Mobsby worked unceasingly in the cholera and small-pox camps and responded to all the extremely heavy demands made on him. He remained with the organization until Mandalay was evacuated, and continued his duties at Kyaukmyaung, Ye-U, and finally at Tamu camp on the Burma–Manipur border. He displayed unfailing cheerfulness throughout, and his readiness to perform work not falling within his immediate duties was of the greatest value to the evacuee organization."

"During an air raid on Mandalay the hospital was the centre of the target area and received several direct hits from incendiary and high-explosive bombs. Mr. Gill was giving an anaesthetic during an operation when the theatre was hit. Although suffering from shock he remained with his patient and eventually got him down to safety. He returned and brought out another patient who was awaiting an operation. He then helped to extricate from a burning building six night nurses and two cholera cases, although it appeared that to reach the building would be almost certain death. He afterwards set to work, without rest, to salvage hospital equipment. Mr. Gill showed cool courage and great devotion to duty."

Special attention to the food provided in industrial canteens for boys and girls from 14 to 18 years, particularly to the proper distribution of available foodstuffs, is urged in an article on canteens and nutrition in the Jan.-Feb. issue of *Industrial Welfare and Personnel Management*. It has evidently been the case in some instances that more meat has been served to those who could afford to pay higher charges for their meals than the "under 18's," that too much of the available milk has been used for coffee, and that the fat content of puddings and main dishes has been skimped to get pats of butter. In such methods the writer of the article sees lack of understanding of the needs of juveniles, and points out that more care in this direction will be amply repaid by less sickness, better production, and fewer accidents. In the same issue the establishment, within the boundaries of a factory, of a special ante-natal clinic which is attended regularly by a consultant obstetrician and gynaecologist is discussed. Two other articles deserve mention: one states the case for increased rather than reduced subsistence allowances for workers as illness continues, and the other describes the three centres established in 1942 which provide, at an inclusive charge of 25s. a week, "restful holidays" for workers suffering from nervous strain.

Reports of Societies

NON-SPECIFIC EPIDIDYMITIS

At a joint meeting of the Sections of Surgery and of Urology of the Royal Society of Medicine on Feb. 3 the subject for discussion was "Non-specific Epididymitis." Mr. E. C. HUGHES presided.

Mr. E. G. SLESINGER said that by "non-specific" was meant a non-tuberculous, non-gonococcal epididymitis, a well-recognized condition, although it had received scant mention in textbooks or articles. During the last fifteen months he and his colleagues had had 34 Service cases in men with an average age of 38.8 years. The symptoms were pain and swelling; in 19 the pain came first, in 8 the swelling, and in 7 the pain and swelling came together. The onset was gradual in 3 cases, but in the others it was stated to have been sudden. Some of the cases were febrile throughout, but most showed a marked pyrexia for the first few days; none of the patients appeared to be generally ill. There was tenderness in all cases, which was acute in 3. The vas was demonstrable in 16 cases, and the whole epididymis was enlarged in every case. Examination of the urine showed a little albumin in 12, and coliform organisms were seen on a slide in 3. Treatment consisted of rest in bed with support of the testis, the patient being fitted with a suspensory bandage. Sulphapyridine and sulphathiazole were tried, but neither made the slightest difference to the condition. Three cases were operated on. The results in the other 31 cases could be grouped as: (1) those in which resolution occurred in from three to six weeks; and (2) those in which resolution was a matter of some months. In the second group some residual thickening was left in the epididymis; but he had been unable to follow up the majority. He considered that this series represented something new in incidence, and in the absence of evidence of breakdown and obvious tuberculosis elsewhere it was certain that cases of epididymitis must be conservatively treated in the first instance. Operation was not essential in any of the 3 cases in which it was performed. The lumen of the vas seemed to be the route of the infection; there was no evidence that infection occurred by mass lymphatic spread. What was not clear was whether urine alone could produce an epididymitis or whether infection of the urine was a necessary concomitant. If all these 34 cases were really cases of infective epididymitis with pathogenic organisms, it was difficult to believe that none of them would have gone on to the formation of pus. If the passage of uninfected urine down the vas were accepted as the determining factor, there was nothing to explain why it should occur with such relative frequency in young men in the Services as compared with the normal population in peacetime.

Three Groups of Swellings

Mr. DONALD MCGAVIN said that the clinical group of hard, craggy swellings of the epididymis could be divided into inflammatory, obstructive, and vascular, and by far the largest group was the inflammatory. The ages of the patients varied from 24 to 38. In 3 of his small group of cases the onset was associated with strain while exercising or lifting. There were only 2 obstructive cases, one in a patient with a history of gonorrhoea who had a nodule on the side corresponding to the enlarged epididymis, and the other showed much muscular hypertrophy around the vas and tubules. In the vascular group the swelling often appeared to be in the body of the epididymis or in the upper pole. The prostate and testicle showed irregularity of form in some cases. In the inflammatory group 12 cases treated conservatively resolved, either completely or with a residual nodule in the lower part of the epididymis; in the vascular group 2 cases treated conservatively subsided satisfactorily. Treatment should include full investigation, with complete *x*-ray examination of the chest and other parts involved, and repeated observation each week and then at monthly intervals. Rest was important in the early stages, with modified activity in the course of three or four weeks.

Mr. R. H. O. B. ROBINSON said that non-specific epididymitis developed either with dramatic suddenness or insidiously.

Resolution was variable, in some cases lasting months, and there was a tendency to relapse. The condition might be bilateral, but was usually unilateral. Infection might come from the urinary tract, particularly the posterior urethra, as in gonorrhoea; non-specific urethritis and prostatitis might be responsible in others. Cases admitted to St. Thomas's in the period 1933-9 numbered 176, the majority of them non-specific. Of 50 cases under his own care during that period, 24 were non-specific, the remainder being tuberculous or gonorrhoeal, but at one hospital in 1941-2 21 cases were admitted, of which 19 were non-specific. With regard to the path of infection, the possibility of retrojection of sterile urine, with a small quantity being forced along the vas, had been suggested, and there was some evidence in American literature to substantiate this.

Brigadier HEDLEY WHYTE said that this was no new disease, and it was sufficiently common to be important. From the patient's point of view the medical attendant should realize that he was not dealing with a condition which necessitated the removal of the testis. He was not convinced that this was a disease peculiar to soldiers, and gave figures for military hospitals suggesting that the incidence was very small. Two different varieties of case from a clinical point of view were under consideration: he did not know whether one of them was a blood infection or due to retrojection into the vas, or the other due to direct spread along the vas from other urinary conditions; certainly some came on very gradually indeed, and might be mistaken for tuberculosis; others might be mistaken for torsion of the testis. Time was the great factor in establishing the diagnosis; the non-specific cases recovered, the tuberculous ones did not. With regard to treatment, in most of the cases there was a very acid urine and relief was obtained by alkalis. In a few cases there was general disturbance and rise of temperature and a good response to the sulphonamides. Wing-Cmdr. AINSWORTH DAVIES mentioned 58 cases which had been treated at an R.A.F. hospital and were divided into: (*a*) epididymitis secondary to diseases of the urinary or genital organs, and (*b*) epididymitis primary so far as the urinary and genital tracts were concerned. The primary type, which accounted for 37 of the cases, seemed to be due to a blood-borne infection, possibly from the colon, or following inoculation, or, rarely, a sequel of injury. When an obvious focus was present the epididymitis was probably staphylococcal. A few cases showed rise of temperature. The stay in hospital averaged 14 days.

Response to Sulphonamides

Wing-Cmdr. G. L. M. MCELLIGOTT said that since the introduction of the sulphonamides gonococcal epididymitis was extremely rare, but he saw more cases after non-specific or non-gonococcal urethritis than after specific gonococcal urethritis. Probably the best explanation of how the condition was acquired was that the original source was a gonococcal infection which cleared, leaving behind a secondary inflammation, from which the condition was picked up. Coliform organisms were found in very few of these cases. A significant point was that the cases relapsed; the swelling went down, and the patient went on leave, and was back again in three or four weeks, with or without an accompanying urethritis. This might be extremely slight and might well be missed unless examination took place in the early morning. The duration of disability might be lessened considerably by short-wave therapy to the epididymis.

In some further discussion Brigadier EDWARDS asked whether they were quite safe in assuming that the patient recovered by rest in bed. Col. T. E. OSMOND suggested that all these cases should undergo a puncture of the epididymis and a bacteriological examination. He had found diathermy give great relief. In his reply Mr. SLESINGER said that they were all agreed that the textbooks and teachers of the past had not been alive to the fact that the epididymis was heir to many ills other than those due to the gonococcus and the tubercle bacillus. Another thing which the discussion had brought out was that a number of different things were still being confused under the one heading. It was important to recognize that these cases occurred a great deal more often than was appreciated. He suggested that men in the Services should be advised to empty the bladder before doing physical training.

RECENT EXPERIENCE OF ENCEPHALOMYELITIS AND ALLIED CONDITIONS

At a meeting of the Section of Neurology of the Royal Society of Medicine on Feb. 18, with Dr. R. M. STEWART presiding, the subject for discussion was "Recent Experience of Encephalomyelitis and Allied Conditions."

Dr. W. RUSSELL BRAIN said that the clinician was much handicapped in discussing acute encephalitis. The textbook presented him with an elaborate classification based upon pathological differences, isolation of viruses from the brain, cross-immunity tests, and so on, but the clinical descriptions of the various forms closely resembled one another. Hence, apart from epidemics and the post-exanthematous group, any clinical diagnosis that went beyond acute encephalitis was often only guess-work, and if the patient survived and no virus was isolated it could not usually be said with what form of encephalitis they were dealing.

During the last two years he had seen 22 cases of acute encephalitis and 6 of acute aseptic meningitis. Of the 22 cases of encephalitis, 6 followed measles, 1 mumps, 2 occurred after inoculation, and 2 were of the so-called Marie-Strümpell type. The remaining 11 seemed to fall into 3 clinical groups. In 6 the onset was acute or even fulminating with high fever and stupor or coma, and 3 of them with meningeal signs had polymorphonuclear cells in the cerebrospinal fluid; in spite of the stormy onset, recovery was complete in 5. In 2 further patients the onset was subacute and the course progressive to death in two to three months. In the remaining 3 the onset was subacute and the course at first relapsing; there was evidence of considerable destruction of the white matter with permanent visual-field defects and pyramidal lesions when the disease became arrested. Without attempting to apply clinical descriptions to them, it might be said that there seemed to be three different patterns of reaction of the nervous system to infection.

An interesting cerebral complication of scarlet fever was a meningo-encephalitis characterized by a lymphocytic pleocytosis. He recently saw an example of this in a boy of 6 who developed meningeal symptoms when his rash was desquamating. He was febrile for ten days and showed no response to either antistreptococcal serum or sulphonamide. His cerebrospinal fluid contained 160 lymphocytes per c.mm. on two occasions. Was this meningo-encephalitis caused by a streptococcus or its toxins, or was it caused by a virus? and if by a virus, was the virus infection superimposed upon scarlet fever, or was the whole disorder, including the rash, due to a hitherto unrecognized virus?

His series included one example of a rare form of encephalitis of which only 4 previous cases appeared to have been described. The characteristic feature was the presence of eosinophil inclusion bodies in the nuclei of the cortical ganglion cells. His patient, a boy of 11, developed symptoms after anti-diphtheria inoculation. Change in character was followed by impaired vision and ataxic gait. The distinctive clinical features were facial spasm, trismus, clonic movements of the right upper and lower limbs, and a right grasp reflex with left hemiparesis. The patient was comatose with double hemiplegia for five weeks before he died, three months after the onset of symptoms. The cerebrospinal fluid was normal.

Little had been added to existing knowledge about encephalitis after measles and other exanthems. He had seen 6 cases of measles encephalitis in the last two years, and had learned that complete recovery might occur from a condition which during the first weeks of the illness looked hopeless. A girl aged 12 was mute and diplegic six weeks after the onset of encephalitis, but three months later she had almost completely recovered. It was difficult to assess the results of treatment, but it was advisable to use convalescent or immune horse serum.

He had seen 3 cases of nervous disorder after inoculation with tetanus toxoid with or without T.A.B., and 4 cases of nervous disorder occurring within a few days of A.P.T. inoculation against diphtheria. One of these was the fatal case of encephalitis with inclusion bodies already described; the other 3 were all cases of poliomyelitis, occurring when this disease was already prevalent. The relation of the infection to the inoculation was at present unsettled, but it should be emphasized that with diphtheria immunizations numbering thousands and

T.A.B. and tetanus toxoid inoculations numbering millions these complications were extremely rare. Finally, it should be borne in mind that sulphanilamide might cause demyelinating lesions of the brain and spinal cord, and as drugs of this group were now so widely used in the treatment of acute infections, care should be taken before attributing to the infection an encephalopathy which might be the result of the treatment.

Dr. J. G. GREENFIELD showed a number of microscopical sections taken in cases of encephalitis and indicated the form and nature of the inclusion bodies. One of his cases was an encephalitis which he regarded as being of the virus type, and which corresponded histologically with encephalitis produced by known viruses but differed considerably from the accepted picture of encephalitis lethargica. It was in a boy of 9 who died three days after admission to hospital; he had no fever until a few hours before death, and the cerebrospinal fluid was normal. Microscopically a very intense encephalitis was found with marked microglial infiltration.

Dr. DOROTHY RUSSELL also showed a series of sections, including ones illustrating the inclusion encephalitis to which Dr. Greenfield had drawn attention. This was a particularly interesting form of encephalitis because it seemed to bear all the hall-marks of a virus encephalitis. There was nothing very gross to be observed, and it was peculiar in that there was very little associated meningitis. In the pyramidal cells of the cortex there were a considerable number of eosinophil nuclear intrusions.

The PRESIDENT said that it was obvious that this aspect of neurology must account for a very important chapter in the textbooks of the future. He raised the question of Schilder's encephalitis.

Dr. RUSSELL BRAIN said that one of his cases of encephalitis following measles was exactly like Schilder's encephalitis in its end-result. There were, however, two attacks, the first of them three weeks after measles, when the child ceased to speak, but there was no coma and there was a gradual return to normal. After a lapse of nine months the child became ill again, had coma, which remained for a week or so, and on recovering consciousness was completely blind, and the end-result was exactly like that seen in a case of Schilder's encephalitis.

NUTRITION IN PREGNANCY

The Nutrition Society held its tenth meeting at the London School of Hygiene and Tropical Medicine on Feb. 6, when the subject of the symposium was nutrition in pregnancy. The chair was taken in the morning by Dr. F. H. A. MARSHALL and in the afternoon by Brigadier F. A. E. CREW. There was a large attendance at both sessions, the agenda for which included six short papers, five separate discussions, and a general discussion.

Mr. ALECK BOURNE opened with a paper on foetal development, in which he sounded a warning note against the tacit assumption, made by many who should know better, that birth weight was necessarily an indication of viability and health. As was pointed out by many subsequent speakers, though there were others who seemed to have forgotten it, the effect of sub-optimal maternal nutrition—at any rate in the human species—only makes itself felt in the offspring if the nutritional plane is so low as already to have affected the health of the mother adversely. This is a particular aspect of a general rule—one of the few that seem to emerge clearly from the mass of information brought forward at the meeting—to the effect that the foetus is essentially parasitic on the mother. Dr. JOHN HAMMOND attempted to bring a general and more theoretical interpretation to play on the facts summarized in this way. His suggestion that the flow of nutrients to any tissue or organ was determined by the metabolic activity of that organ, and that this principle applied not only to the single organism but to the mother and foetus treated as one, certainly seemed to explain many of the known facts, or at least to summarize them in a concise and intelligible manner. At the same time, as Dr. Hammond himself was the first to admit, the differences between species still need explaining, especially as these result both in very marked differences of development as between the newborn of one species and another and also in marked proportional differences between the various parts of the newborn body. Generally, however, these differences correspond closely with those in maturity of the embryo at term.

Functions of the Placenta

Dr. Hammond's paper was followed by a characteristically speculative survey by Sir JOSEPH BARCROFT of the nutritional functions of the placenta. He asked many questions to which he said, regretfully, he was unable to supply answers, but his paper did serve to show the gap between the practice of the obstetrician and the experiments of the physiologist, bridged to a limited extent by the workers in animal husbandry and the laboratory biochemist. Sir Joseph raised the question whether the placenta was to be regarded merely as an ultra-filter, or whether it had powers of discrimination that affected the relative rates of passage of various nutrients, and, if so, how such powers were achieved. The figures given by him of the relative differences in pressure between oxygen in maternal and foetal blood vessels, differences in osmotic pressure between the two plasmas, and differences in individual ion concentrations, seemed to indicate fairly clearly that the placenta was something more than a mechanical barrier. In opening the discussion on Sir Joseph's paper, Dr. T. MOORE called attention to the barrier offered by the placenta to vitamin A, and it was recalled during the discussion that a similar phenomenon had been recorded for vitamin E.

The first three papers constituted the main part of the morning's business and each led to brisk discussion. Several speakers referred to the unsoundness of attempting to ease labour by reducing the size of the infant through nutritional deprivation. It is clear that this procedure has now the active opposition of all leading experts both in the gynaecological and in the nutritional field. Dr. A. S. PARKES, in an interesting note contributed in his absence by Dr. Ruth Deansley, discussed the bearing of hormone-induced superfecundation in rabbits on the problem of infant size, and came to the tentative conclusion that this was more likely to be determined by nutritional factors than by hormone supply.

At the afternoon session, at which attention was given to the relation between parity and infantile mortality and morbidity, Prof. JAMES YOUNG, answering Dr. S. K. Kon, said it was impossible to state whether there was any real correlation between the birth weight and parity in the human subject. Dr. W. H. NEWTON referred to the effect of the placenta on the maintenance of maternal weight, and Mr. ALECK BOURNE emphasized what he had mentioned in his original paper—namely, the importance of sound nutrition as a means of securing proper uterine function, normal labour, and viable offspring.

Wartime Diet: Its Likely Deficiencies

In a paper on diet in pregnancy Prof. A. St. G. HUGGETT stressed the importance of the last period of pregnancy, and discussed in some detail the effect of planes of nutrition on the health of human and other animal infants. After considering wartime statistics and diets, he tentatively concluded that the only likely shortages in the present-day feeding of pregnant women, compared with pre-war feeding, were in animal protein, calcium and phosphorus, vitamin D, and ascorbic acid, but that the deficiency, if any, of each of these was not enough to have affected significantly the birth weight of newborn infants, even of twins, which normally afforded the more sensitive index. Prof. Huggett's paper was appropriately followed by a summary from Dr. MARGARET BALFOUR of the well-known Birthday Trust Fund experiments. Dr. Balfour's statement made it clear that the final parts of this investigation had benefited from the investigators' experience during the earlier stages, and had thus made possible detailed statistical examination and treatment of the results. These showed the effect of supplementary feeding on the health of babies and also of their mothers when these had been previously subjected to a diet considered inadequate by modern standards. The results of this investigation thus afford in some measure an *ex post facto* justification of the People's League of Health and the Toronto experiments, both of which have been adversely criticized recently, as Prof. Huggett and also Prof. J. R. Marrack pointed out, without adequate consideration being given to the relation between these admittedly limited experiments and the whole body of present knowledge about diet and health in general and pregnancy in particular.

Mr. RICHARD TITMUSS presented a paper on stillbirth and neonatal mortality, in which he had collected data on the bearing of various influences on both mortality and morbidity of the infant. His figures, which will need detailed study when they are available in print, revealed the effect of a number of, perhaps, previously unsuspected factors—such as the difference between town and country—and showed that preventable wastage of infant life still goes on. He posed some interesting questions—for instance, why there appears to be an "irreducible minimum" of neonatal death and why the differences in social ranging express themselves in an increasingly different mortality rate between infants of increasing age.

Of particular interest during the general debate was a discussion between Dr. ISOBEL LEITCH, Dr. HELEN MACKAY, Prof. HUGGETT, Dr. LUCY WILLS, and others on the relation between the iron content of human milk, the iron reserves of infants, and the susceptibility of infants to anaemia. Prof. E. J. BIGWOOD'S information to the effect that birth weight in Belgium on a maternal diet of 1,500 to 2,000 calories per day had not substantially diminished seemed to give effectual denial to the assertion, quoted by Prof. Huggett, that birth weight in Vichy France had fallen by one-third. For this there appears to be no documentary evidence. The possible relation between the creatinuria of pregnancy and vitamin E deficiency was, unfortunately, side-tracked into a wholly irrelevant discussion on muscular dystrophy.

Correspondence

Scientific Freedom and Social Medicine

SIR,—As a member of the Medical Planning Commission I have read with very great interest, and perhaps a little surprise, the article by Dr. Geoffrey Bourne (Feb. 20, p. 227) and the letter by Mr. T. W. Mimpriss (p. 234). The fears which Dr. Bourne so ably expresses are and have been in the minds of every member of the Commission. They have not only been acutely aware of the dangers but have been very apprehensive lest they should be grafted on to the new system of social medicine. My feeling of surprise lay in the fact that so many of the profession do not appreciate how all the grave drawbacks of State medicine described by Dr. Bourne have been most fully and carefully discussed, and the precautions suggested to avoid them have been published in the Interim Report, which together with the conclusions of the committees have been published in the *Journal*.

It is manifest that this report has not yet been sufficiently widely read, and Dr. Bourne's article will therefore be invaluable in directing attention still more forcibly to the fact that with State control of medicine, as conducted in the present autocratic manner, there is a very real danger of the complete loss of freedom of thought and freedom of action, that criticism and with it all progressive work may disappear, and that the profession may become simply a system of distributing the knowledge gained by other countries free from the trammels of bureaucracy. It may also be of value to those who are not aware of what has been done to consider seriatim the conclusions of Dr. Bourne, with which I may say I am in entire accord, and to give references to those sections of the Interim Report in which methods of avoiding the dangers are suggested.

(*a*) All the higher posts are purely administrative. This is true of the majority of State services; even in the Army no one above the rank of lieut.-colonel is an operating surgeon or a clinician. All conduct is strictly controlled by orders laid down in King's or other Regulations drawn up by those with but little clinical and no local knowledge, situated at a remote centre. The clinical head is given no responsibility of action but is responsible for his actions. He may have gained excellent results, but if to do so he has contravened some foolish rule he is reprimanded rather than commended. As a result, not only does all initiative disappear but able young men refuse to enter a service in which after a time all their clinical and scientific training is lost and they become stereotyped civil servants. Nearly all medical superintendents in the present State services are acutely aware of these drawbacks. (See sections 38, 39, 41, 79, 80.)

(*b*) Control of the service is in the hands of one man, generally a layman, at the head with autocratic powers, or of a lay body. This is an extension of (*a*), but it tends to limit progress and improvement, and especially improvement based on the experiences gained by those in clinical posts and by professional men abroad. The profession tends to be stereotyped and economic rather than live and progressive. (See sections 51–60.)

(*c*) Control of the institution is in the hands of a medical superintendent. Unless the superintendent is a man of wide vision, all research and originality in the younger men have no scope, nor do they develop a sense of responsibility or the power to rectify abuses and the use of out-of-date methods. The superintendent is expected to be a supernatural being with a knowledge of all branches of medicine, which is beyond human capacity. (See section 89.)

(*d*) No action can be taken or newer scientific methods be used without permission. Hence there is a long period between the acquirement of knowledge and its practical use. (See sections 89 and 82–84.)

(*e*) Freedom of publication. The absence of this is almost universal in all the present State services. Permission has always to be obtained, and has in the past been withheld because the article has been thought to criticize the methods of the service. The importance of freedom of action, of thought, and of speech has been universally recognized and insisted upon by the Commission, and its loss has been guarded against by the sections dealing with the positions of the members of the staffs of all hospitals in the scheme. (See sections 78–94.)

(*f*) The danger of political pressure. With Government control and with the highest post a reward given by the political party in office this is a real danger. Its worst results are seen in Germany, where eminent scientists have been replaced by inefficient heads who are ardent Nazis.

(*g*) Promotion by seniority. The danger of this system, which is present in all the State medical services and is characteristic of all bureaucracies, has been recognized as perhaps the most important factor in crushing all initiative and originality and as being likely to reduce the present high standard of British medicine to mediocrity. Men, whatever their ability, have to relinquish a post on reaching a given age or after holding one post for a certain period—in the Army medical it is four years—in order to make way for the promotion of a younger man who in many cases has no claim other than length of service. Rank or emolument is not given to the man but is carried by the post, so that a man's rank or reward may alter not from a change in his ability but because a regulation insists on his being moved from post to post. (See sections 87, 88, 92, 93.)

(*h*) Mr. Mimpriss's letter deals with the question of private fees of salaried officers. The claims of some services that fees paid by private patients, attracted by the skill, reputation, and renown of an individual doctor, should be paid to the service which pays his salary, although it already makes a profit by the letting of the private room, is recognized as an iniquitous exploitation of the doctor. (See section 83 and the later conclusions of all the recent committees as published in the *Journal*.)

Finally, all these dangers are guarded against by the proposals of the three later committees that the Commission would be willing to co-operate . . . provided that the character, terms, and conditions of the medical service are determined by agreement with the medical profession.—I am, etc.,

London, W.1. JAMES WALTON.

SIR,—I think Dr. Geoffrey Bourne (Feb. 20, p. 227) merits our warmest congratulations on his notable article on this subject. He has suggested one foundation stone—*scientific freedom*—as essential to a new medical edifice if it is to make a maximum contribution to the health of the people. Of course, there are other foundation stones about which opinions are divided; but unanimity in the profession in support of Dr. Bourne's thesis would probably go far to secure its adoption if its intrinsic merit alone failed to carry conviction.

Bacon long ago laid down that "no pleasure is comparable to standing on the vantage ground of truth." That a youthful genius, so standing, should be frustrated by a short-sighted autocrat is unthinkable, and no doubt adequate safeguards could and would be devised.—I am, etc.,

Manchester. J. STAVELY DICK.

SIR,—It was a pleasure to read Dr. Geoffrey Bourne's article "Scientific Freedom and Social Medicine" (Feb. 20, p. 227). May I give an early experience of the autocratic system? I was an assistant medical officer at a fever hospital in pre-antitoxin days. At 2 a.m. on a winter's morning I was called by the night superintendent to a little girl suffering from laryngeal diphtheria. I had admitted the child in the afternoon and had obtained the written permission of the parents for tracheotomy if necessary. The child, aged 3, was *in extremis* and I operated, the anaesthetic being given by a junior (qualified) colleague. Later in the morning I was summoned to the

office of the medical superintendent and soundly admonished for not having obtained his permission to operate. I should say that his house was at least a quarter of a mile from the ward and there was no telephone. I was threatened with "suspension" and was to be reported to the chairman at his next weekly visit for luncheon (and billiards). No more was heard of the matter, for the tube was out in four days and the child made a good recovery. I only learned later that mine was the first tracheotomy that had survived at that hospital.

Dr. Bourne refers to publications by medical staffs, but he omits to mention that officers of the L.C.C. hospitals not only had to obtain the permission of the Chief Medical Officer before publishing any communication, but further had to state that the Council assumed no responsibility for the (approved?) opinions expressed by one of their officers.—I am, etc.,

London, S.W.1. JAMES H. SEQUEIRA.

The B.M.A. and the Beveridge Report

SIR,—No doubt we all realize the difficulty the Council of the B.M.A. faced in framing their recommendation, but surely the one decided upon will be immediately "blown sky-high" by the obvious question:

> "If, as suggested, there are members of the community who decide not to avail themselves of the benefits of the scheme, but wish to obtain their medical service from a doctor within the scheme by paying privately, what advantage would such patients expect to gain from their doctor by such arrangement which they would not otherwise receive?"

—I am, etc.,

Halesowen, Worcs. HERBERT W. BLAND.

SIR,—I think that if the Beveridge report is brought in in full then the medical profession should co-operate fully with the Government in providing a complete medical service for the whole community; but we as a profession should be united on one point—namely, that the conditions of service must be satisfactory and must be agreed upon by previous negotiation between the medical profession and the Government.

The conditions of service should be such that a doctor is adequately paid, so that he can fulfil his existing obligations and continue to live in a style to which he has been accustomed; he shall have sufficient freedom to carry on his practice in a manner agreeable and convenient to himself and his patients; and, finally, the clerical work should be drastically curtailed. Previous negotiation is essential, as we do not wish to find that, after contracting to fulfil certain obligations, other obligations are thrust upon us without our consent being obtained.

If, however, the Government attempts to bring in the medical part of the Beveridge report alone while deferring the other proposals, then I think we should be better advised to press for the B.M.A. plan, with its consultant service for N.H.I. patients and the inclusion of their dependants. This will give an inexpensive and good medical service to those who really need it, and will not interfere with the existing arrangements between doctor and private patient.

Whether the Beveridge report or the B.M.A. plan is brought in, I think we should insist on three things: (1) The conditions of service must be satisfactory and must be agreed upon by previous negotiation. (2) The scheme should rest upon a general practitioner basis, and should provide for part-time State salaried service and part-time private practice. (3) There should be free choice of doctor and free choice of patient in order that the doctor may serve the patient and not the State alone.

We should avoid a whole-time State salaried service, which is contrary to the traditions of our profession and the interests of our patients, and which means, for us, service on terms dictated by the Government, since we as a profession would have no prospect of employment other than Government service.—I am, etc.,

Stonehouse, Glos. W. G. MURRAY-BROWNE.

War Neuroses

SIR,—In his paper on war neuroses (Feb. 13, p. 183) Dr. W. Ronald D. Fairbairn expresses his belief that they are the result of regression to an infantile emotional level, in which the soldier regards his superiors in rank as "bad" parental figures who have no love for him, in contrast with the "good" parental figures at home who love him. He looks upon the neurosis as the result of an attempt to restore emotionally the intra-uterine state of security which was rudely disturbed by the experience of birth. Holding such fantastic beliefs it is easy to understand why Dr. Fairbairn finds that the war neuroses are resistant to his psychotherapy.

My experience in the war of 1914-18, and especially at Seale Hayne Military Hospital for Functional Nervous Disorders with its 350 patients and 10 medical officers, was that the war neuroses responded very well to simple psychotherapy in the form of explanation, persuasion, and re-education. Major W. Johnson and other officers in charge of advanced neurological centres in France were able with similar methods to send 60 to 80% of their patients back to front-line duty within four weeks of the onset of symptoms, and according to Col. Gordon Holmes only about 10% relapsed.

A much smaller experience in the present war has not led me to alter my opinion. The results achieved by the late Col. E. L. Cooper and Capt. A. W. M. Sinclair (*Med. J. Austral.*, 1942, **2**, 73) during the siege of Tobruk have shown in dramatic fashion how good is the prognosis of war neuroses when properly handled, even under the most unfavourable conditions. They worked in a special ward situated in a dimly lit concrete shelter near a heavy anti-aircraft battery, where psychotherapeutic talks were punctuated by the noise of shell fire and bombing, and where there were no facilities for recreation or occupational therapy. In spite of these disadvantages 79 out of 207 men with war neuroses treated between May and August, 1941—i.e., 38%—were returned direct to their units. An additional 48 went back to full duty after treatment at the base, making a total of 61% now serving as fighting soldiers. Of the remainder 23% were fit for base duties and only 12% (of whom 7% were mental defectives or psychotics) had to be evacuated to Australia.—I am, etc.,

Oxford. ARTHUR HURST.

Abortus Fever

SIR,—I read with interest Dr. D. G. Leys's article (Feb. 13, p. 187) on eight cases of abortus fever. During 1941-2 I saw five cases of this infection, four of which came under my own care and one was seen in consultation. All patients were over 21 years of age, and four were males, thus conforming with the general trend that the under-15's and females are more immune. Dr. Leys's cases, in the main, conformed to this distribution.

Three of the five cases were definitely diagnosed as of abortus fever by their own doctors, a fourth was admitted as a paratyphoid B infection, and a fifth as a case of cerebrospinal meningitis. Three of the cases had "rose spots," and in two instances these were numerous. All complained of general muscle aching, profuse perspiration, and severe headache. Titres ranged from 1:480 to 1:2000 (highest tested). The case admitted as of cerebrospinal meningitis had neck rigidity, marked photophobia, and drowsiness lasting for 48 hours. One patient died; he developed an acute left orchitis, followed by a right pleurisy, then a left pleurisy (both sterile), and, finally, meningitis (sterile), considered on chemical analysis of the cerebrospinal fluid to be tuberculous. Both spleen and liver were enlarged. Orchitis is also noted as a manifestation of infection in bulls, rams, and boars, while muscles are affected in equines. The occupations of the patients were as follows: engineers 2, airman 1, W.A.A.F. 1, lawyer 1.

Treatment was with sulphapyridine 8 to 10 g. daily, reducing the dose as the temperature settled. In the case of the patient who died, fouadin was also used, but without effect. The average length of the illness after the commencement of treatment was four weeks. The doses of sulphonamides given by Dr. Leys to his cases have been, I think, too meagre, as a loading dose is required, followed by a tapering off in amount when the temperature begins to settle. From experience of the fatal case mentioned above and my knowledge of another case, not under my care, still active after three years, I feel that early and adequate treatment with all the necessary precautions is necessary, as once chronicity sets in sulphonamides may not be efficacious.

The true incidence of abortus fever is probably much higher than is generally believed, although in a rural area like Rossshire the general practitioner, as a result of his close contact with a farming community and the diseases that affect their

animals, is in all likelihood more aware of the possibility of its presence than is his colleague in urban areas.—I am, etc.,

Strathpeffer, Ross-shire. J. LANDESS HORNE.

Weil's Disease

SIR,—Dr. K. Blum's letter on Weil's disease (Feb. 20, p. 231) calls for some comments.

1. It is well known that many cases of Weil's disease never develop jaundice; in Holland, Schüffner found 60% anicteric. Therefore, while it is true, as Dr. Blum states, that "every case of illness with jaundice and high fever should be suspect," many cases will be missed if these are the criteria adopted. It must, however, be admitted that the early diagnosis of Weil's disease is very difficult except when the patient's calling attracts attention to the possibility—e.g. coal-miners, sewer-workers, fish-workers.

2. The agglutination test is negative until the 6th or 7th day of disease, and is often confirmatory rather than diagnostic. If specific serum treatment is to be of value it must be carried out during the first few days of the illness.

3. For diagnosis, in addition to a history of certain or probable contact with rats (in this country there has been no evidence that mice play any part), the blood count is of especial value. In Weil's disease there is a polymorphonuclear leucocytosis, whereas in infective hepatitis (catarrhal jaundice) the total white cell count is normal or diminished, and there is a relative lymphocytosis.

4. Dr. Blum states: "Whether ordinary infectious hepatitis in wartime is allied to morbus Weil cannot be proved, but should be borne in mind." In fact, although definite proof has not yet been obtained, the available evidence is strongly in favour of a virus origin of infective hepatitis, and there is no indication that it is in any way related to Weil's disease. Hundreds of cases have been investigated, mainly by my former colleague Major H. C. Brown, with this point in view.

5. In the past the investigation of the various "jaundices" has been badly hampered by failure to discriminate among the different clinical and pathological entities. These conditions are now being separated, and it would be a great pity if the position were to be obscured by reintroduction of the old confused ideas.—I am, etc.,

The Wellcome Research Institution, W.C.1. J. C. BROOM.

A Member Resigns

SIR,—Your leading article on "A Member Resigns" is a little too ingenuous to go without comment. Thus might Mr. Chamberlain or any of the tetrarchs of the 'thirties have said: "True we have the keys of office, the party machine, the Press, air, money, and time, yet we are a democracy and any of you can come and take our places."

The note about the imminence of the crisis that confronts us probably means that the older men are preparing to sell the pass while the younger ones are otherwise engaged.

Still I disagree with the resignation. The worst of quarrelling is that it stops controversy. Besides, I think the library is well worth the sub.—I am, etc.,

Beckley, Sussex. C. G. LEAROYD.

SIR,—Like your original correspondent (under the above title) I recently entertained the thought of discontinuing my membership of the B.M.A. and for much the same reasons: on account of its silence during the present critical phase of our social evolution, and its failure to lead, to present a bold concrete total plan to meet the pressing demands for adequate health facilities for all. But I decided not to resign just yet, because, on stating the proposition to myself thus—"Knowing that adequate medical services should be available for all, and knowing that the high cost of such services could not be met except by the State, why does not the B.M.A., or its Council, present a comprehensive total scheme to Government accordingly?"—several obstacles then became apparent. First, the obvious lack of agreement among members of the medical profession itself; the conflict between the older conservative doctors hoping to continue private practice along the present lines and the younger generation favouring a sort of panel system for all. Another difficulty was that of estimating the cost; expenditure very much higher than at present would obviously be needed, but such estimates might meet with official rebuff as yet. In the circumstances a cautious advance by the B.M.A. was understandable. So I decided not to resign this year, and I am pleased, because otherwise I should have missed reading Dr. Geoffrey Bourne's article entitled "Scientific Freedom and Social Medicine" (Feb. 20, p. 227). The publication of this article reveals a healthy and progressive outlook—at least on the part of the Editor. One earnestly hopes that Dr. Bourne's lucid and instructive article will be widely read. Obviously it cannot be read by some thousands of non-B.M.A. doctors and by the public (non-readers of the *B.M.J.*). Therefore I would suggest that, say, 100,000 copies of the article be printed and distributed free. Some of us would be pleased to contribute to the cost of printing, etc., if necessary.

Space does not permit one to quote from Dr. Bourne's essay, but one principle of fundamental importance which he sets down in italics should be stressed again and again, "The *democratic* system of medical service is *entirely compatible with State control.*" It is urgently desirable that all doctors should appreciate this truth.

In the same issue (p. 230) there appears a thoughtful and provocative letter by Dr. B. W. Monahan, who recognizes that the most essential need in providing more extensive medical services is a monetary one, and he aptly points out that the average smoker spends £10 yearly on tobacco. One wonders what the total expenditure on beer and tobacco is, and how much it would cost to provide a comprehensive medical service for all?—I am, etc.,

Aldershot. F. M. PURCELL.

Foot-and-Mouth Disease in Man

SIR,—As has been widely publicized in the national newspapers, there has been a severe outbreak of foot-and-mouth disease in my county. An interesting sequel has occurred in my practice.

On Feb. 8 I was called to see a little girl in a small farm cottage. This house is adjacent to two small farms, at both of which recently there was an outbreak of foot-and-mouth disease among the stock, all of which had to be slaughtered. This child had to skirt these farms on her way to school daily. She was not in direct contact with the animals, nor was she drinking milk from either of these sources. The milk came from an attested source elsewhere.

On examination the child was very toxic, and in the room where she lay there was a peculiar pungent smell which intensified as one approached the bed. Her temperature was 103° F., pulse rate 150–160 per minute, respirations 23 per minute, and she was flushed and cyanosed. Excessive salivation was apparent, and the saturated pillow exuded this peculiar smell. She had become progressively ill for some days before I was called. On examination of her mouth I found that there were multiple vesicles and small yellow ulcers extensively over the inside of her lips and cheek, and on her palate and gums, the surface of the tongue, and on the pharynx. The vesicles were filled with yellow fluid. The breath was very foul and some of the ulcers were bleeding. Apart from this the only other complaints were of abdominal discomfort and severe thirst. Further examination revealed no other lesions on the skin. Her lungs appeared to be normal. No laboratory tests were done, treatment being carried out straight away.

She was given a total of 12 grammes of sulphapyridine and dettolin mouth washes. Her temperature and pulse settled to normal in 4 days, and on Feb. 14 her mouth was practically clear except for some shallow vesicles and ulceration on the gum margins around the teeth. Our local medical officer of health, who saw the patient for me, was also of the opinion that this was probably a case of foot-and-mouth disease.

—I am, etc.,

Dingwall. KENNETH MACLEOD.

*** Two cases of foot-and-mouth disease in man were reported by Dr. Henryk Dlugosz in the *Journal* of Feb. 13 (p. 189).—ED., *B.M.J.*

Rushcliffe Committee's Report

SIR,—An adequate nursing service is unlikely to ensue from mere attention to the pay packet. "There is no wealth but life," and money is no compensation for loss of health in youth. Until we realize that an impossible strain is imposed upon nurses by expecting of them two lives in one—the student's and the full-time employee's—we shall, deservedly, go short of recruits. The Rushcliffe Committee's recommendations do not reach the core of the problem.—I am, etc.,

ESTHER CARLING.

Dietetics of Pregnancy

SIR,—Your correspondents Mr. W. T. Russell and Dr. W. J. Martin (Feb. 13, p. 204) are right in supposing that my knowledge of statistical technique is imperfect. It is, however, sufficient for me to appreciate the cogency of their correction and to be able to agree with them that the sampling error in the work of the People's League of Health is even greater than I stated. Now the purpose of my contribution to the discussion at the R.S.M. was to examine critically the claims made by some recent workers to have influenced the incidence of premature birth by dietetic methods. I suggested that the results of the work sponsored by the P.L.H. had no significance. If the statisticians who examined them now state that I have ascribed to these results a higher degree of significance than they ever claimed, it seems that there is no point at issue between us.

As regards the data which I presented before the R.S.M., the abbreviated report does not, perhaps, make the point as clear as it might be, but I should have thought that with the aid of the published histogram the facts could be deduced. These facts are that the periods of gestation recorded in my series of 147 observations are normally distributed around a mean of 41.2 weeks, with a standard deviation of about 12 days; this *does* lead to the expectation that one-eighth of all instances will terminate before the beginning of the 40th week. Of course, a normal curve is not symmetrical about a line which is not drawn through its mean point; even I, the imperfect statistician, do not expect that.

Your correspondents' comment on the failure of the P.L.H.'s dietetic measures to influence the mean birth weight—"especially as all premature babies are not subnormal in weight"—affords a perfect illustration of the way in which the main object of a piece of work can be forgotten if realistic standards are not set at the start and rigidly maintained. Infants die from immaturity, not from estimated prematurity.

While I fully realize that Mr. Russell is not responsible for the choice of experimental method, surely the fact remains that the estimated period of gestation—estimated presumably from the last alleged menstrual period—is too crude and unreliable a yardstick by which to measure the small differences which these dietetic experiments have achieved. To desire earnestly that some means, dietetic perhaps, may be discovered for the prevention of premature birth and the wasteful loss of infant life associated therewith is not the monopoly of the P.L.H. or of any section of opinion; but to prove the efficacy of such means is another matter. It would not be unfair, I think, to liken these advocates of dietetic methods for the abolition of prematurity to the leader of the deputation who closed his interview with the Minister of State with the words, "And those, Sir, are the opinions upon which I base my facts."—I am, etc.,

London, W.1. DOYNE BELL.

SIR,—Dr. Doyne Bell's histogram does not represent a normal curve but a skew curve conforming to Pearson's Type I. Neither a normal nor a symmetrical curve can be expected to describe the length of gestation, since it is possible to have larger deviations below the mean than above. But even if we assume a normal curve, his corrected values of a mean of 41.2 weeks and a standard deviation of 12 days will not lead to 1/8 of the distribution falling before 40 weeks, but gives 24% of the total as occurring before 40 weeks. Perhaps Dr. Doyne Bell omitted to express the deviation from the mean in terms of the standard deviation when entering the tables of the probability integral.—We are, etc.,

W. T. RUSSELL.
London School of Hygiene and Tropical Medicine. W. J. MARTIN.

Ligature of the Innominate Artery

SIR,—Sir W. I. de Courcy Wheeler has asked me to put details of this case on record on the grounds that only about seventy have been reported, though there must be many more unpublished.

A woman of 67 came to the Leicester Royal Infirmary on account of a swelling above the right clavicle; this had been first noticed six months before. The right arm had recently felt dead and its power was diminishing. On examination there was an expansile swelling above and behind the middle of the right clavicle; the right hand showed clubbing of the fingers and slight wasting of the intrinsic muscles compared with the opposite side. The grip was impaired on the right; there was no delay in transmission of the right radial pulse; the reflexes in both upper limbs were normal. Pupils reacted to accommodation but only sluggishly to light. Knee-jerks were absent. There were clean-cut ulcers with yellowish bases on the inner and lower parts of both tibiae. Wassermann reaction ++; Kahn reaction ++++. *X*-ray examination of right shoulder girdle showed no bony change.

Operation, May 24, 1940: Incision along line of lower part of sternomastoid, out along clavicle, and down upper part of deltopectoral groove; lower ends of right sternomastoid, sternohyoid, and sternothyroid detached temporarily; middle third of clavicle divided. Aneurysm of the innominate artery extending into the beginning of the subclavian; scalenus anterior and part of brachial plexus thinned out over aneurysm. Innominate artery ligatured, and pulsation in aneurysm immediately stopped; tributaries of sac ligatured; three-quarters of sac excised and remainder oversewn; no drainage.

Post-operative course: Middle third of clavicle failed to unite; wound otherwise healed soundly. No signs of cerebral damage appeared at any time; no pulsation or thrill recorded in the aneurysmal site; pain in the arm persisted but was lessened; some diminished power of grip persisted in the right hand.

—I am, etc.,

Leicester. DONALD MCGAVIN.

Pleurisy and Pleural Effusion

SIR,—From the observation post at the Pleural Effusion Unit established by the L.C.C. at Queen Mary's Hospital, Sidcup, I wish to make a few comments on Wing Cmdr. R. R. Trail's very welcome article (Jan. 23, p. 98). The subject of pleurisy and pleural effusion is becoming more important, not only because of the increase in the number of cases concomitant with the general increase in tuberculosis, but also because idiopathic and secondary tuberculous pleural effusion appears to follow a more serious course than it used to, probably owing to the lowered general resistance of the average patient in wartime.

The importance of correct appreciation of the symptom pain is rightly stressed by Wing Cmdr. Trail; I would like to add that pain on laughing and on yawning can be an early symptom of pleurisy, just as it is one of the last to disappear.

In the differential diagnosis no mention is made of rheumatic pleural effusion, which can present some difficulties. I think mention should be made also of the so-called sulphapyridine effusion, as this term is starting to creep into medical language. Pleural effusion due to the action of sulphonamides does not exist; it has never been reported in the course of treatment of non-pulmonary conditions by these drugs. It is possible, though difficult to prove, that chemotherapy has caused an increase in the number of metapneumonic serous effusions, as some of these effusions would have become purulent in pre-chemotherapeutic days; that is all. It must be admitted that the differential diagnosis between pleural effusion and pneumonia with effusion can be difficult; some cases of primary effusion look really ill and are profoundly toxic, and have not "the appealing look, the clear complexion, and the bright eye of the average tuberculous patient." The great value of a white cell count can be offset, if not resorted to early, by the depressant effect on the leucocytes of sulphapyridine, which is nowadays frequently administered blindly.

We attach much significance here for the diagnosis *a posteriori* of tuberculous pleural effusion to the finding in the radiograph of grossly enlarged and fluffy hilar glands, frequently more conspicuous on the opposite side to the effusion. The persistence of these shadows three months or more after the onset of the effusion appears to be of fairly serious prognostic significance. It is, of course, a wise precaution to perform a tuberculin skin test in every case in which the tubercle bacillus has not been demonstrated.

Few people will agree with Wing Cmdr. Trail's statement that "the radiograph of the transudates of cardiac and renal failure generally shows bilateral effusion, small in extent, and confined to the costo-phrenic angles." In congestive heart failure the effusion is often of considerable size, and is much larger on the right side. To distinguish between a transudate and an exudate at the bedside, Rivalta's test can be of real aid; one or two minims of the fluid to be examined are dropped into a glass container filled with 1:100 acetic acid; a smoky cloudi-

ness is observed on the downward path of the fluid (owing to its high protein content) if it is an exudate. When, after other suitable investigations, doubt persists as to the nature of the effusion, whether it be an exudate or a transudate, it may be useful to recall that an exudate has a lower *p*H than that of the patient's blood, while the *p*H of a transudate equals that of the blood.—I am, etc.,

E. MONTUSCHI.

Peptic Ulcer a Deficiency Disease?

SIR,—The gastric and duodenal ulcers of to-day seem to possess some of the characteristics of deficiency ulcers—i.e., their chronicity, their resistance to treatment, their tendency to rapid perforation and haemorrhage.

The gastric and duodenal ulcers in my practice have responded in a most hopeful way to vitamin therapy. Two tablets of a well-known vitamin preparation containing in each 2,500 I.U. of vitamin A, 160 I.U. of B_1, 250 I.U. of C, and 250 I.U. of D given three times a day relieve all pain and discomfort in 6 to 10 days. Then a maintenance dose of two tablets per day seems to keep patients symptom-free—for how long I cannot yet say.

One patient was eight weeks at a base hospital with his ulcer not healed. Because of financial stress he discharged himself and went back to work. Three weeks later an *x*-ray film revealed a penetrating ulcer. He was on the point of being admitted to hospital for a partial gastrectomy when he developed a quinsy. I began to give him the above vitamin preparation—6 tablets a day. He was free from pain in 6 days, and was then able to sleep all night without pain waking him at 4.30 every morning. Of his own accord he gave up his two-hourly feeds. Another patient, whose duodenal ulcer was responding to the vitamin treatment, developed a corneal ulcer for the second time—probably a B_2 deficiency. This is interesting because of the well-known relation of corneal ulcer to vitamin A deficiency.

I have twenty-odd ulcer patients on vitamin therapy and am keeping notes. Neither rest in bed nor diet restrictions seem to be essential, nor alkaline powder.

All this may be coincidence, but my clinical experience suggests that peptic ulcers are a manifestation of vitamin deficiency disease. Nearly all vitamin foods are rationed, or are on points or in short supply—milk, butter, eggs, meat, fruit, and green vegetables (last winter).

This must be what happened in Denmark in 1917-18. Meulengracht's haematemesis diet was, in Denmark, successful because it was a way of introducing vitamins.—I am, etc.,

London, S.E.18. J. J. O'MULLANE.

"Calorie Control" Diabetic Diet

SIR,—I have read the article by Dr. A. C. Crooke and Miss Ella Scott (Jan. 16, p. 64) and Dr. R. D. Lawrence's reply (Jan. 30, p. 143) with considerable interest. Is not the difference of opinion due to the fact that no attempt has been made to differentiate the types of diabetes? Physiology shows that a glycosuria may arise from many different causes, and my own experience in the treatment of patients is in agreement with this. So long as all cases in which there is sugar in the urine together with a high blood sugar are labelled as diabetics, we shall be able to point to success and failure with many varieties of treatment.

Experience before the introduction of insulin may be helpful. Some of us remember the starvation treatment of Allen and the high-fat treatment of Newburgh and Marsh, each of which gave excellent results in certain cases. Two instances in my own experience show how differently patients may respond to different methods. Nearly 20 years ago a jam manufacturer consulted me, and I found a moderate degree of glycosuria with a raised blood sugar. After I had prescribed an appropriate diet he told me that he would follow it, but that he had eaten jam in large quantities all his life and would continue to do so. I told him that he would kill himself. Ten years later I saw him again with a normal urine and blood sugar. He told me that he had kept to the diet together with jam in large quantities. Five years later I was called to see him in a moribund condition with gangrene of the leg, acetonuria, and a high blood sugar. In contrast to this, a young girl on the verge of coma with intense ketosis and a high blood sugar was given nothing for five days but fat in the form of cod-liver oil. The ketosis disappeared, she made a good recovery, and lived for some years on a restricted diet. Metabolic rest, despite the alleged ketone-producing capacity of fat, was sufficient to produce stabilization. The first case was probably one of arteriosclerosis accompanied by glycosuria; the second, a true pancreatic diabetes.

Are not many of the cases we see, in which large doses of insulin fail to produce a permanently normal urine and blood sugar, due to a factor other than the pancreas which has not been recognized? In a normal person the blood sugar will be lowered by insulin and may produce toxic effects. The same may happen in a diabetic if the cause is other than pancreatic. For this reason I agree with Dr. Lawrence that the doses of insulin advocated are high and might lead to unpleasant results.—I am, etc.,

Manchester. T. H. OLIVER.

SIR,—Without entering into a discussion of the physiological basis of diabetic diets we have one criticism of Dr. A. C. Crooke's system (Jan. 16, p. 64). In Birmingham most of the younger men are working long hours, often at arduous tasks, and in many cases have a number of their meals at work. Of the remainder, who may be presumed to have time to make a hobby of their ailment, very few have either the temperament or the good sense to co-operate in any but the simplest dieting. If the accurate weighing suggested by Dr. Crooke were ordered for these patients they either could not or would not co-operate for any length of time. In our experience the factors that lead to success in diabetes are courage, good sense, and a diet of good quality. These things are more important than facility in shallow arithmetic.—We are, etc.,

GERALD KNIGHT.
Birmingham. J. M. MALINS.

Anaesthesia for Laryngofissure

SIR,—I fear that Dr. C. B. Lewis in his most valuable medical memorandum (Feb. 6, p. 162) has overlooked one danger of trilene. He points out that in this operation the diathermy is safe because trilene is non-inflammable. Trilene is merely trichlorethylene stabilized with thymol. Trichlorethylene decomposes at 125° C. into hydrochloric acid and the deadly phosgene gas.—I am, etc.,

London, W.2. THOMAS E. A. STOWELL, F.R.C.S.

Coarctation of the Aorta as an Obstetrical Complication

SIR,—After reading Dr. C. W. Walker's interesting contribution on coarctation of the aorta as an obstetrical complication (Feb. 13, p. 190) I feel that it would be of general interest to add a case that occurred in my own practice in Shanghai during the last war.

An Englishwoman, 23 years of age and recently married, whom I had never seen before, asked me to attend her in her first confinement. At the pre-natal examination I found her to be a very finely developed and well-balanced young woman. I learned she was a keen tennis player, of an active and self-reliant nature, and had hardly had a day's illness in her life. She had no trouble whatever during pregnancy, and elected to remain in her own flat for the confinement rather than go to a nursing home.

The early stages of labour were borne quite cheerfully, and when I returned later I found her sitting up and very hopeful. I moved into an adjacent room to read for a while when I was suddenly called back by the nurse to find that the patient had fainted whilst being helped on to the couch. I found her unconscious, very pale, and with a small irregular pulse, the rate being 120. Within a few minutes consciousness returned, the pulse rate dropped to 90, and she seemed almost her normal self again, though the pallor remained. Sensing danger ahead I telephoned an ambulance and, after half an hour's rest, took her to the nursing home, where my fears were soon allayed. She passed through the final stages of labour with perfect equanimity, and within two hours a female child weighing 8 lb. was born without undue distress.

On the following morning I found that the mother had slept well and was comfortable, though the pulse rate had kept at 100–110 since her confinement. At five o'clock in the afternoon I called again to find her happy and content, having rested well during the day; the pulse rate was unchanged. I had hardly passed into the hall when I was called back to find the mother dead.

At the post-mortem examination the pericardium was distended with fluid blood. There was no obvious enlargement of the heart, though the muscular development of the left ventricle was well marked. The sheath of the aorta was distended with dark blood clot, and there was a longitudinal rupture of the vessel one-third of an inch in length on the left side just above the valves. The walls of the aorta were perhaps thinner than normal but otherwise appeared normal. Below the origin of the left subclavian artery there was complete coarctation of the aorta, hardly allowing the passage of a bristle. The post-mortem findings pointed almost conclusively to the aortic rupture having occurred when the patient first fainted; a dissecting aneurysm formed in which the blood clot strengthened the wall sufficiently to allow the circulation to proceed, which it did for 17 hours; then the outer wall of this aneurysm gave way and the pericardium was instantly flooded.

—I am, etc.,

Guildford. W. B. BILLINGHURST.

Preparation of the Hands for Operation

SIR,—A very interesting method of preparing the hands was quoted from Davletov, a Russian surgeon, in the *Bulletin of War Medicine*, Jan., 1942 (p. 169), regarding a series of 200 cases, and I am surprised that the idea does not seem to be widely known or applied. Starting from the fact that most pathogenic bacteria require an alkaline medium (*p*H 7.5 to 8.0), that the reaction of the skin changes from strongly acid to strongly alkaline between the surface and the basal layers (*Lancet*, 1942, **2**, 18), and that artificial gastric juice without pepsin is bactericidal and does not harm the tissues, he proceeded to try the effect of washing his hands, which were contaminated with staphylococci, streptococci, and diplococci, with gastric juice and with dilute hydrochloric acid alone.

He finally developed the technique of washing his hands for two periods of 5 minutes in 0.1% HCl with the aid of a piece of sterile cotton-wool, and then wiping his hands for 2 to 3 minutes with 0.15% HCl in 20 to 40% surgical spirit. The results were excellent. The method requires no preliminary scrubbing, no sterile water, and no subsequent application of mercuric perchloride or iodine.

This appears to be a simple, cheap—one may almost state physiological—way of preparing the hands, and should materially help to remedy the dearth of rubber gloves which threatens us at the present time.—I am, etc.,

St. Mary's Hospital Medical School, W.2. LEON RADCLYFFE.

Absenteeism in Industry

SIR,—Absenteeism in industry is a problem facing both lay managements and medical practitioners and through them the whole nation. Granted that much of this absenteeism is due to genuine organic disease or disablement, a not inconsiderable proportion is due to a type of incapacity variously labelled by the profession as assorted "catarrhs," pleurodynia, dyspepsia, or, more commonly, "debility," nervous or otherwise.

As an industrial medical officer in the full-time service of a concern whose product is of vital importance to the war effort, I receive many and various certificates sent in by absent employees. Having been a G.P. myself for many years I am fully acquainted with the problems facing my erstwhile colleagues. I am now entering a plea that they should consider those which face me and other industrial M.O.s, the first of which is to maintain our loyalty to our professional brethren in the interpretation to managers of the certificates sent in by them to explain a worker's absence from essential duty. One's professional solidarity is on occasion strained to the utmost, as, for instance, when a batch of "dyspepsias" arrives to cover the day or two succeeding New Year's Eve. Certificates in industry nowadays are as vitally important to the community (with a corresponding responsibility on those who issue them) as are death certificates, where lax or undesirable terms are defined in a schedule. By a similar schedule can we help ourselves to obviate the refined form of blackmail to which we are subjected by the certificate hunters?

May I beg from some leader of our profession a definition of the diagnosis "nervous debility," which, as I understand it to mean at present, is a syndrome characterized subjectively by a dislike of the job in hand and objectively by a desire on the part of the practitioner to get rid of a neurotic. What reliance can the average intelligent manager put on the certificate of a doctor who states that his patient is unfit to work in the conditions of a certain factory twenty-five miles away, when, apart from the uncorroborated evidence of the patient, it is obvious that he can have no knowledge of what those conditions are? Many of these medical euphemisms for "absent from duty" just won't wash nowadays with managers who are harassed by queries about production. Comparisons between workers at home and Service personnel are invited and are hard to counter. I am convinced that our profession is being imposed upon now that, in these days of industrial conscription, "the doctor" is the last resort of the "work-shy." I believe that the remedy is in our own hands—more "austerity in certification."—I am, etc.,

A. G. EDDISON.

Treatment of Bacillary Dysentery

SIR,—In a letter on this subject Flight Lieut. A. G. McManis and Major W. Gordon Rich (Jan. 16, p. 82) mention good results with sulphapyridine. In the Middle East sulphanilamide, sulphapyridine, and sulphaguanidine have all been used, and the results obtained with the last-named drug in one general hospital on the first 76 cases so treated are given in a paper by Bulmer and Priest in the *J. R.A.M.C.* of December, 1942. As we had no opportunity to correct the proofs a number of misprints have unfortunately crept in, but we summarized the position by the statement that sulphaguanidine was found to be, in the admittedly small series of cases, as specific for bacillary dysentery as sulphapyridine was, for example, in pneumonia. In this first series no toxic effects were encountered; in a later and larger series there were a few cases of rubelliform rash, unaccompanied by other ill effects, about the fifth day of treatment, and one case of haematuria with pain, similar to that which occurs with sulphapyridine but mild in degree and of short duration.

We have also tried sulphanilamide and sulphapyridine for bacillary dysentery. The former we found of little value. With the latter good results were obtained, which in some cases could be described as dramatic. We considered, however, that of the drugs of this series then available sulphaguanidine remained the treatment of choice, since toxic effects are rare, and it does not produce anorexia, nausea, and depression, which were common with sulphapyridine; the patient under treatment with the former was a more cheerful and fitter man.—I am, etc.,

W. M. PRIEST.

Cardiac Invalidism in Children

SIR,—Referring to Dr. R. P. Garrow's letter (Jan. 23, p. 114), I cannot share his despondency and alarm in regard to the work of cardiac centres. In particular I take exception to his opinion that attendance thereat is liable to confirm the invalid attitude of both child and mother. In addition to its obvious functions in the investigation, diagnosis, and supervision of suspected and actual cases of rheumatism and cardiac disease, a properly conducted clinic should lessen the period of real and bogus cardiac invalidity. Such a clinic certainly cannot initiate or perpetuate unfounded fears, but rather dispel them.

Reviewing the work of my council's rheumatism and cardiac clinic during the past year, it is found that the majority of cases were referred from hospitals, school clinics, or by general practitioners, with definite symptoms and/or signs indicative of congenital or acquired cardiac or rheumatic disease. In only an insignificant number of cases could a child's attendance be ascribed to maternal over-anxiety such as Dr. Garrow describes, and in these instances the attendance resulted in the effectual dispelling of the unjustified fears.

I consider that a properly organized and competently staffed rheumatism and cardiac clinic working as an integral part of a similarly constituted public health service performs most valuable work in the abolition of both preventable and unwarranted cardiac invalidism. In such circumstances I lack Dr. Garrow's temerity in uttering *ex cathedra* pronouncements on the findings of a rheumatism or cardiac specialist, and I am constrained to inquire what especial qualifications he possesses to justify such oracular declarations.—I am, etc.,

A. H. G. BURTON,
Medical Officer of Health.

Ilford.

Obituary

H. W. C. AUSTEN, M.D., L.D.S.ENG.

Harold Austen, who died from pneumonia on Jan. 22, was born at Ramsgate in 1868, the eldest child of Josiah Austen, a staff surgeon in the Royal Navy. He was educated at Tonbridge School and St. Bartholomew's Hospital, qualifying M.B., B.S. in 1890. He took the M.D.Lond. in 1892 and the L.D.S.Eng. in 1897. After qualifying he was house-physician to Dr. (later Sir) William Church, clinical assistant to the Central London Ophthalmic Hospital, and assistant medical officer to the Western Hospital, Fulham. In 1901 he was appointed assistant dental surgeon to the Royal Dental Hospital and the following year to St. Bartholomew's Hospital. For ten years he lectured on materia medica at the Royal Dental Hospital, and was the first to hold this lectureship. In 1902 he edited, with Douglas Gabell, a materia medica for dentists, which has since reached a seventh edition. During the last war Austen joined the Royal Naval Volunteer Reserve; he was engaged chiefly in telegraphy on the East Coast of England and was frequently entrusted with carrying important dispatches to London. In 1917 he married Juliette Mazet, who survives him. On retiring from the staff of Bart's in 1928 he was elected a governor and a consulting dental surgeon to the hospital. He had been a member of the B.M.A. since 1891.

Austen was fortunate in having a large number of interests, in many of which he excelled, notably in music. Membership of the Society for Psychical Research and other societies, painting, a good knowledge of ceramics, and gardening afforded him other pleasures. Having the instinct of the perpetual student he took up the study of Chinese in later years. A man with all these attainments was naturally a bibliophile, and he had collected a very fair library. It was, no doubt, largely owing to his many outside interests that he took up dentistry to allow him further scope and opportunity for indulging in these recreations.

Harold Austen was a lovable character, quiet, unassuming, devoid of all conceit and boastfulness, and possessed of good common sense. He never experienced failure in any of his examinations, and if he had had a little more thrust, and perhaps been a little less concerned with his outside attainments, he would have made a more prominent name in the medical world. Possibly this would have been at the expense of his endearing personality. Austen is survived by two brothers—one in Auckland, New Zealand, and the other a retired Commander in the Royal Navy—and a sister, Winifred Austen (Mrs. Frick), a well-known painter and etcher of animal and bird life. F. C.

Mr. EDWARD BUTTAR writes: Harold Austen had an uncommon capacity for esteeming "other better than himself." So it was entirely in keeping that he should have studied Chinese in his later years; for the ceremonial self-depreciation of the ancient Chinese was entirely in accordance with his own genuine attitude. Loyal in affection, he bestowed that affection so wholeheartedly that it was difficult at times to feel worthy of such friendship. His secret, beyond doubt, lay in his conviction that the world is full of all sorts of interesting matter and in his determination to have his full share of it. To many he may have seemed a shy and even slightly embarrassed man, but, when offered a box on which his match would strike, he at once appeared as an exponent of the now almost lost art of conversation. In the words of Joseph Conrad, ". . . the sort that's always chasing some notion or other round and round his head just for the fun of the thing." His was indeed a happy life.

JAMES MURRAY, M.A., M.D.

The death occurred on Feb. 2 at Inverness at the age of 90 of Dr. James Murray, well known in the North of Scotland as a skilful practitioner, a wise and purposeful administrator, and a genial personality. He was Highland born and bred, being a Murray of Kilcoy in the Black Isle, and a genuine and loyal Highlander he remained. Educated at the Inverness Royal Academy, where he did well and began his career as a medallist, he went at the early age of 15 to Edinburgh University. After taking his M.A. he studied medicine, and when a student in Lord Lister's class was awarded the medal for clinical surgery. He qualified M.B., C.M. in 1876, and then served for a time as house-surgeon at the Royal Infirmary in charge of Patrick Heron Watson's wards, and under his tutelage Murray must have acquired his distinct surgical bent. There followed a short period in a coastal town in Scotland, but the call of the Highlands, his "ain countrie," was strong in him, and in 1879 he went north to his beloved Inverness, there to practise for sixty-odd years among the Highland folk he loved. For the whole of his professional life in Inverness he was connected with the Royal Northern Infirmary, first on the staff and then on the board of management. The Infirmary and its welfare occupied much of his care and attention in season and out. While at the Annual Meeting of the B.M.A. at Oxford he gained the ear of Lord Nuffield and received at once a cheque for £1,000 towards the extension of the Infirmary which was then going on. Next to the claims of the hospital came those of the B.M.A., for he was a member for 64 years, served on the Central Council in 1900-1 and again in 1906-7, and for 22 years was Representative of the Inverness Branch at the A.R.M.

Dr. Murray was a good mixer, making friends easily and being ready to discuss any subject, especially in music, literature, or painting. He disliked the motor car, and was a great believer in the healthy exercise afforded by cycling; he continued to make his visits on a bicycle until he was over 80. James Murray was a typical Highland gentleman, courteous, cultured, kindly to everyone, and punctilious in the discharge of all his engagements. The funeral service at the Old High Church, in which he had for many years been the senior elder, was indicative of the esteem in which he was held by all classes of the community. He was predeceased by his wife, and leaves two daughters, one of them being the Warden of University Hall, St. Andrews.

H. LAMBERT LACK, F.R.C.S.

Consulting Aural Surgeon, London Hospital

We regret to announce the death on Feb. 14, in his 76th year, of Mr. Harry Lambert Lack. He was born in 1867 and was educated at King's College, London, qualifying M.R.C.S., L.R.C.P. in 1890 and taking the M.B. of the University of London in 1892. He was elected F.R.C.S. in 1893 and proceeded M.D. in the following year. When the B.M.A. met at Ipswich in 1900 he acted as secretary of the Section of Laryngology and Otology, was vice-president of the same section at Oxford in 1904, and at the Aberdeen Meeting in 1914 held office as president of the Section of Laryngology, Rhinology, and Otology.

A colleague writes: Lambert Lack was one of the most distinguished rhino-laryngologists of our time. Many important contributions resulted from his original outlook and aptitude for research. He received his medical education at King's College Hospital, but during the greater part of his professional career he was associated with the London Hospital. He owed much to a sound training in surgery and pathology; the latter subject was always of special interest to him, and his opinion on a microscopical specimen was valued by many who had made pathology their life study. He was awarded the Jacksonian prize in 1899 for an essay on "The Pathology, Diagnosis, and Treatment of Inflammatory Affections of the Nasal Fossae and the Associated Sinuses and Air-cells." This essay was subsequently revised, chapters were added, and a book, *The Diseases of the Nose and its Accessory Sinuses*, published in 1906, was the result. This was the first really scientific and exhaustive treatise on the subject to appear in English, and the opinions of leading specialists are fully reviewed and analysed. The book is especially valuable for the amount of original material which it contains, much of which resulted from pathological studies carried out by the author. The sections on nasal obstruction and sinusitis are quite exceptional. Subsequent contributions appeared from time to time dealing with subjects connected with the nose and throat, all of great merit. Lack was never redundant in words written or spoken, and he had the capacity of lucid and masterly exposition. He was much beloved by his colleagues, and the author of this short appreciation learned to value his extreme modesty, never-failing kindness, and stimulating personality. He treated patients at the

London Hospital with the same courtesy and care as those who came to consult him privately.

Lack had many other interests outside his strictly professional activities. He loved beautiful things, and a good deal of his spare time was spent in the acquisition of a choice collection of furniture. He was extremely fond of the country, and at one time, when he had a week-end house at Littlestone, he was an enthusiastic golfer. He had a great knowledge of literature and poetry. Mrs. Lack, who survives him, shared his literary tastes, and the "Poetry Society," which met at his house and in which his talented wife took a distinguished part, was a source of enjoyment to many of his friends. Three sons and a daughter also survive him.

Dr. CONSTANCE ELIZABETH RIDOUT died on Jan. 19, to the great regret of all who knew her. Her health began to fail last August, but with characteristic courage and resolution she continued in active practice until three days before her death. She started work in the literary world, but the last war opened her eyes to the sufferings of humanity and she determined to take up medicine. She was a student of University College and qualified M.R.C.S., L.R.C.P. in 1922. Her first post was with the late Mr. J. Russell Howard in his surgical out-patient department at the London Hospital, where later she became clinical assistant in the genito-urinary department (women). In 1924 she came to Oxford as R.M.O. at the Wingfield-Morris Orthopaedic Hospital. Later Dr. Dorothy Crook was appointed house-surgeon to the hospital, and thus there began a professional association and a close friendship which was never interrupted, for in 1926 she and Dr. Crook started in general practice together in Oxford, and here they have lived and worked together in the highest tradition of our profession. Since 1933 Dr. Ridout had been clinical assistant at the genito-urinary department (women) at the Radcliffe Infirmary, and since 1937 had worked for the Oxfordshire County Council on ante-natal, maternity, and post-natal care in the country round Oxford. When the war came she undertook the work of medical officer to the hostel for evacuated children in Oxford.

She saw her work generously in the way of the old-fashioned doctor, caring for her patients as individuals and family groups, much interested in the maintenance of health of mind and body and in the prevention of disease and deformity. She was a woman of independence of mind, of remarkable and rare personality. To those of her colleagues and patients who knew her well she was a true and attractive friend of unusual character.—G. R. G.

The Services

The King has approved the award of the R.N.V.R. Officers' Decoration to Surg. Cmdr. W. McO. MacGregor, O.B.E., and Acting Surg. Cmdrs. W. F. Lascelles and H. G. Ungley, R.N.V.R.

Surg. Lieut.-Cmdr. W. H. C. M. Hamilton, R.N., has been mentioned in dispatches for services in convoys to North Russia.

CASUALTIES IN THE MEDICAL SERVICES

Prisoner of War.—Lieut. J. G. McGavin, R.A.M.C.

Missing.—Wing Cmdr. D. Magrath, R.A.F.

Missing (Unofficially reported Wounded and Prisoner of War).—Capt. S. D. Corry, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Col. LESSEL PHILIP STEPHEN, I.M.S. (ret.), who died at Grimsby on Feb. 1, was born on July 20, 1874, and was educated at the University of Aberdeen, where he graduated M.A. in 1895 and M.B., Ch.B. (with distinction) in 1899. He took the D.P.H.Lond. and the D.T.M.&H.Camb. in 1907, and was elected F.R.C.S.Ed. in 1912. He entered the I.M.S. as lieut. soon after qualification, was promoted capt. in 1903, major in 1911, lieut.-col. in 1919, and retired in 1926. Among the posts he held while in India were those of acting professor of ophthalmology and ophthalmic surgeon in the Medical College, Bombay, and superintendent of the Medical School and civil surgeon, Hyderabad, Sind. After retiring from the I.M.S. he settled in Grimsby and was honorary surgeon to the hospitals at Horncastle, Scunthorpe, and Louth, and surgeon to Brigg Infirmary. He was also ophthalmologist under the Ophthalmic Benefit Scheme and consultant under the Public Health (Notification) Puerperal Fever and Puerperal Pyrexia Regulations, 1926. He had been a member of the B.M.A. since 1903 and was chairman of the Grimsby Division in 1935–6.

Medical Notes in Parliament

Beveridge Report in the House of Lords

When the House of Lords on Feb. 24 discussed the Beveridge report Viscount SAMUEL said it constituted the finest body of proposals on social reform which had been presented to the country in our time. There was no reason for postponing all preparations until they knew exactly what the financial situation would be after the war. Archbishop Lord LANG could not conceive that the Government, having gone so far, did not feel themselves bound to go further. He maintained that the appointment now of a Minister of Social Security was analogous to the appointment of a Minister of Town and Country Planning. There was a great deal that such a Minister could do at present.

Medical Provisions

Lord DAWSON said that in the debate in the House of Commons family allowances and the hospital and health services had been pushed to the front and had been blessed by three Ministers of the Crown. He was sure that had resulted in great activity within the Ministry of Health. It seemed necessary, therefore, to make some statement to show where the medical profession stood. Sir William Beveridge, although stating in Assumption B that the medical services would take an important place in his plan, avoided saying what the scheme for those services should be. Sir William assumed that, "from the standpoint of social security, a health service providing full preventive and curative treatment of every kind to every citizen without exceptions, without remuneration limit and without an economic barrier at any point to delay recourse to it, was the ideal plan." That assumption, Lord Dawson continued, had been considered by the medical profession for many years. After the last war Lord Addison instituted an inquiry into the medical services, and that inquiry, of which he (Lord Dawson) was chairman, reported that changes were necessary, because the organization of medicine had become insufficient and because it failed to bring the best means of maintaining health and curing disease to all citizens. That had been adopted unanimously but was left in abeyance.

During the past two years the medical profession had studied the replanning of medical services. The Medical Planning Commission under the aegis of the B.M.A. and the Royal Colleges, with representatives of municipal doctors, private practitioners, men interested in preventive and curative medicine, had reached a remarkable degree of agreement. At Oxford a medical organization had behind it Sir Farquhar Buzzard, Lord Nuffield, and Sir William Goodenough. A third body, consisting of King Edward VII Hospital Fund and the Voluntary Hospitals Association, had also studied this question, and so far the agreement was substantial. The present Minister of Health and his medical officers had met these efforts in an excellent spirit. The ideal assumed by Sir William Beveridge was one which was seldom attained in one stroke. But there had seemed to be in the House of Commons during the previous week an idea that only about six weeks was required to transform the practice of medicine. Lord Dawson suggested that they should go step by step, should do it by agreement between the two parties, and should show both patience and statesmanship. Medical practice, as regards both doctors and patients, was contained in customs fixed firmly in the habits of the people, involving not only their reason but their emotions and their feelings.

Problems Needing Action Now

Certain matters had been ready for tackling for a considerable time. The first was the bridging of the gap in theory and in practice between preventive and curative medicine. The detachment of these two had been to the disadvantage of each branch and to the public service. Hospital practice and general practice must comprise the care of people's health and the furtherance of health as their chief objective. Medical officers of health must come out of their obscurity, come on to the staffs of the hospitals and meet their colleagues regularly. They had to alter medical education so that the student from his early days was taught that the building up of health must take precedence of the cure of illness.

The second matter which could be dealt with now was to make the practice of medicine increasingly institutional. Medical practice was based on a growing number of sciences, and in its search for truth required team-work. Team-work required equipment, and teams were better situated side by side in a building equipped for the purpose. Team-work was a necessity if only for economy of man-power and economy of cost. Once that was admitted, institutional provision must increase. Two instances had a very promising future. In the provision of health centres in industrial organizations there was a vast future for useful work. There the principle was

that of putting the practice where people assembled in groups. The promotion of child health also lent itself to immediate action. It should take precedence of almost every medical movement at this moment. There were schemes of health, notably in London, which stood forth as an example, a scheme in which the leading voluntary hospital for children's diseases would join hands with the Postgraduate Medical School, which would undertake the maternity end in the pre-natal clinics. In that movement not only voluntary associations but the municipal organizations of London would share, and he had confidence that the scheme would be copied in other parts of the country.

What he had said implied a pattern of hospitals, health centres, and clinics allotted to each area. They must be of various grades, according to the needs of the population and distributed where most needed. The areas of distribution must be large, but not too large, and if they were going to serve their purpose we must include several major local authorities. A small area could not have an adequate service, or could only have it at excessive cost. At the head of each region there would be a key hospital, and wherever possible that key hospital would be a teaching hospital. These hospitals would consist in part of local authority hospitals and in part of voluntary hospitals.

Self-determination for the Profession

But a service of this description could not be constructed except under the skilled guidance of the medical profession. Medicine became every year a more complex art based on an increasing number of sciences. It was idle to think that any scheme of hospital service could be run unless a vocational body was always ready at hand to give advice to the administrative authority. The latter must have the last word, but it required the vocational body to advise before it took the final decision. It was not to be expected that a great profession was going to be moved about and take its orders from laymen. Under the agreed control of Parliament the medical profession would demand self-determination in the same way as the Bench, the Bar, and the Church looked after their affairs without let or hindrance. Just as the medical profession was taking a prime responsibility in putting forward these proposals, so it would expect to take an equal part in their guidance. The medical profession had the difficulty that in order to do good planning they must, while having collectivism, have 100% individualism in personal relations.

Government's Reply

Lord SIMON said it was grotesque to talk about the Government showing only a dilatory and half-hearted interest in the subject. Among problems of the post-war period that of health was only a portion of what must be written down as post-war requirements which could not be denied. On the proposal of universal State services, the Government had said, two months from the issue of the report: "We endorse that and we will work for it"; was that a half-hearted adherence? The Government had every intention of making good this immense proposition with the co-operation of those who could advise them best. The Government conceived the scheme not as one which would automatically end a medical man's private practice and not as a scheme in which the voluntary hospitals would have nothing to do. On the contrary, they could continue and they would have their part to play. Sir William Beveridge had said that unless a universal public health service were secured, the proposals he made had no meaning, but he did not say (because it was not his business to say) how this service was to be secured. The comprehensive medical service, the principle of which was accepted, involved bringing in hospital services, institutional services, the part which the local authorities should play, and discussion and negotiation with the doctors and with the doctors' representative organizations. The whole of that subject was in the grasp of the Minister of Health in England and the Health Department in Scotland. To transfer it to someone else and call him Minister of Social Security would not save time.

Recruitment and Distribution of Nurses

In reply to Miss Ward on Feb. 11 Mr. BEVIN said the present shortage and uneven distribution of nurses and midwives for civilian work demanded special measures. After consultation with the organizations representing the interested parties, and in agreement with the Minister of Health and the Secretary of State for Scotland, he had decided to appoint a National Advisory Council for the Recruitment and Distribution of Nurses and Midwives to advise on all questions relating to the recruitment and distribution of male and female nurses and of midwives on civilian work. The council, which would be presided over by a Parliamentary Secretary to his Ministry, and with which officers of the Departments concerned would be associated, would consist of representatives nominated by the various organizations concerned. He would ask the council to meet at an early date and to consider immediately the measures for increasing recruitment, the arrangements for a special registration of nurses and midwives, and the priority to be accorded to the different demands for the different types of nurses and midwives, as well as make suggestions for easing the situation of certain types of hospitals with large immediate demands, such as tuberculosis and mental institutions. There was no intention of changing existing arrangements where these were working satisfactorily. The administration of measures decided upon would be entrusted to the appointments department of his Ministry, acting where necessary through the local appointments offices, each of which would be assisted in its work by a local advisory committee.

Milk Supply and Tuberculosis

Mr. MABANE, replying on Feb. 17 to Major York, said that in March, 1942, out of a total supply by wholesale producers of 3,880,000 gallons of tuberculin-tested milk, approximately 3,000,000 gallons were sold to buyers on the same terms as ordinary milk. It was probable that most of this was bulked with ordinary milk before sale to the consumer. Lord Woolton was considering whether means could be devised both to encourage the future production and consumption of tuberculin-tested milk and to raise the general standard of the milk supply of the country. Mr. Mabane had no reason to think that pasteurization of tuberculin-tested milk would affect the future production of such milk.

Sir CHARLES EDWARDS drew attention on Feb. 17 to a statement by the chairman of the Glamorgan C.C. Diseases of Animals Committee that unless there was an improvement in the condition of the milk public authorities should stop the distribution to children as a means of stopping the spread of tuberculosis. Miss HORSBRUGH said she had seen a Press report of the statement mentioned. In the majority of cases tuberculosis due to bovine infection was non-pulmonary; at all ages it constituted about 30% only of the cases of non-pulmonary tuberculosis. The incidence of non-pulmonary tuberculosis in children under 11 in Wales gradually declined up to 1937, but began to rise in 1938. The increase was rather more marked in 1940, the year in which the national milk scheme was introduced. The numbers of cases notified in the years 1940 and 1941 were 388 and 389, an increase of 16% compared with 1939 and of about 12½% compared with the average for the years 1933 to 1939. Lord Woolton had under consideration practical steps to secure the elimination of active tuberculosis germs from liquid milk.

Investigation of Growth Rates among School Children.—A few local education authorities have continued periodical weighing and measuring of children during the war, and a scientific investigation into growth rates in certain neutral and evacuation areas is being undertaken on behalf of the Board of Education. This investigation, so far as it goes, shows that since the beginning of the war growth rates measured by height and weight are being well maintained.

Notes in Brief

The number of chairmen of medical boards is at present 180. The amount paid in fees to consultants and specialists during the period Sept. 1, 1939, to Dec. 31, 1942, was £395,500.

Medical News

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Saturday, March 13, at 3 p.m., when the possible changes in medical practice as envisaged in the Beveridge report will be discussed, and Dr. Kate Harrower, Glasgow M.W.F. representative on the B.M.A. Insurance Acts Committee, will present a memorandum for consideration and discussion.

A sessional meeting of the Royal Sanitary Institute will be held at Bristol University on Saturday, March 13, at 10 a.m., when papers on "Recent Developments in the Control of Domestic Pests," "The Value of Lethane (384 Special) in the Control of Pediculosis," and "Some Problems in Nursery Provision," by Dr. H. G. H. Kearns, Dr. R. J. Irving-Bell, and Dr. Marguerite G. Hughes and Mr. H. W. Brand, respectively, will be read and discussed.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Thursday, March 11, at 7 p.m., when short papers on "Formaldehyde-gelatin in the Production of Enteric Pills and Capsules," "The Use of Stock Suspensions in Dispensing," "Ergot, the Qualitative Chemical Tests," and "The Acridine Antiseptic" will be read and discussed.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Wednesday, March 10, at 10.30 a.m., when opening papers on "The Clinical Aspects of Prefrontal Leucotomy" by Brigadier J. R. Rees; Drs. R. Ström-Olsen, S. L. Last, M. B. Brody, and Mr. Geoffrey C. Knight; and Dr. E. Cunningham Dax will be read. At the afternoon session, beginning at 2.15 p.m., the subject for discussion is "The Range and Technique of Prefrontal Leucotomy," and opening papers will be read by Prof. F. L. Golla, Mr. Wylie McKissock, and Mr. F. W. Willway.

The Labour Research Department (6, High Holborn, W.C.) has arranged an information and discussion conference on "Canteens, Catering, and Food Supplies," to be held at the Conway Hall, Red Lion Square, W.C., to-day (Saturday, March 6), at 2.30 p.m.

Universities and Colleges

UNIVERSITY OF LONDON

At a meeting of the Senate, held on Feb. 24, it was resolved that for the duration of the war an additional M.B., B.S. examination should be held early in February each year. The effect of this will be that the examination will be held three times in each academic year.

The William Julius Mickle Fellowship has been awarded to Prof. E. C. Dodds, M.D., D.Sc., F.R.S., F.R.C.P., Courtauld Professor of Biochemistry at Middlesex Hospital Medical School.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Prof. Dugald Baird will deliver a lecture, under the auspices of the Dr. John Burns Fund, on "The Problem of the High Stillbirth and Neonatal Mortality in Scotland" in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, March 10, at 4 p.m.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the only changes of note in the number of notifications of infectious diseases during the week were decreases in the incidence of whooping-cough 99, and of scarlet fever 46; and increases in measles 1,945, and cerebrospinal fever 14.

The downward trend of scarlet fever and whooping-cough was confined to the north: there were 52 fewer cases of scarlet fever in Yorks West Riding, and 47 fewer of whooping-cough in Durham and 39 in Lancashire. In the south-eastern counties the notifications of scarlet fever rose by 59; in London the total was unchanged.

Dysentery notifications were down by 4. London and Lancashire, each with 13 cases, accounted for almost one-third of the total; the remaining 59 cases were widely distributed in twenty-three counties.

A seasonal rise of cerebrospinal fever (to 124) brings it to a higher level than during the past twenty weeks. Since the rise to epidemic proportion in the beginning of 1940 the successive peaks and the endemic levels have been progressively smaller. The cases during the past four weeks were approximately two-thirds of the total for the corresponding weeks of last year.

In *Scotland* the incidence of infectious diseases fell. Very small rises were recorded for cerebrospinal fever 2, and pneumonia 3; the trend of these diseases has been upward during the present year. The fewer cases of measles resulted from a drop in the north and the east, while in the south-eastern and western counties there was a small rise. The cities of Aberdeen and Dundee had 33 and 30 fewer cases, but rises were reported from Glasgow and Edinburgh of 9 and 18 respectively.

In *Eire* notifications of diphtheria fell from 126 to 93, and those for whooping-cough rose from 51 to 75—the latter mainly due to the outbreak in the urban and rural district of Kilrush, Co. Clare (20 cases).

Measles

In England and Wales the number of notifications of measles rose by 1,945 during the week, and the total represents an increase of 32% on that of four weeks ago. During the week reviewed the largest increases were those of Yorks North Riding 352, Middlesex 200, London 192, Durham 192, Derbyshire 174, Kent 158, Gloucestershire 155, Buckinghamshire 140, Essex 117, Hertfordshire 108. In contrast to the general rise a considerable fall was recorded in Yorks West Riding 214. Leicestershire 128, Lincolnshire 96, Bedfordshire 94. Some of the large towns are experiencing a rather severe epidemic, and among these are Middlesbrough, Bristol, and Sheffield, where 574, 472, and 436 cases were reported during the week. In London the numbers of cases in the past four weeks were 750, 821, 933, and 1,125; the rising trend is causing some concern to the London County Council, who have issued an appeal for recruits to the nursing staff of their fever hospitals. They require 800 to 900 additional nurses. Two factors that have important influence on the situation are (*a*) the greater proportion of cases sent to hospital because the mothers are working, and (*b*) the return of children to London.

The Week Ending February 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,922, whooping-cough 1,581, diphtheria 828, measles 18,215, acute pneumonia 1,399, cerebrospinal fever 96, dysentery 89, paratyphoid 7, typhoid 6. There were 102 deaths from influenza in the great towns.

No. 6

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	124	14	34	1	8	165	8	49	4	7
Deaths		2	2				1	4		
Diphtheria	895	48	192	93	30	944	30	210	38	32
Deaths	19	2	4	3	—	27	1	10	1	4
Dysentery	85	13	29	2	—	144	30	24	—	—
Deaths		—		—	—			—	—	—
Encephalitis lethargica, acute	1	—	—		—	1	—	1		—
Deaths		—	—				—	—		
Erysipelas			51	10	2			48	2	1
Deaths		—	—	—	—		—	—	—	—
Infective enteritis or diarrhoea under 2 years				41						
Deaths	34	6	5	16	3	37	9	10	—	1
Measles	17,308	1,125	325	25	48	1,793	152	124	142	18
Deaths	17	1	2	—	1	4	—	—	—	1
Ophthalmia neonatorum	78	4	15	1	1	72	4	29	—	—
Deaths					—					—
Paratyphoid fever	4	—	—	—	—	3	—	2	—	
Deaths	—	—	—	—	—	—	—	—	—	
Pneumonia, influenzal*	1,542	71	33	6	18	1,034	58	14	2	8
Deaths (from influenza)	131	13	16	—	4	75	9	5	1	1
Pneumonia, primary			469	40				339	26	
Deaths		—		14	19		67		7	9
Polio-encephalitis, acute	2	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	3	—	—	4	—	1	—	1	3	—
Deaths	—	—	—			—	—	—		
Puerperal fever	—	1	19		—	154	11	9	3	2
Deaths		—					1			
Puerperal pyrexia	146	6	14		—	—	—	19		—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,073	159	311	47	42	1,168	36	207	43	21
Deaths	3	1	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	1	—	2	5	—	10	1	15	2	2
Deaths	—	—	—	1	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,596	118	122	75	14	1,203	142	46	21	8
Deaths	15	3	2	1	—	6	4	—	—	—
Deaths (0–1 year)	459	44	70	59	31	389	52	89	29	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,392	791	737	264	173	5,895	881	814	239	156
Annual death rate (per 1,000 persons living)			16·6	17·4	‡			18·3	16·0	‡
Live births	6,484	849	872	377	308	6,056	670	896	303	222
Annual rate per 1,000 persons living			17·8	24·8	‡			18·5	20·2	‡
Stillbirths	218	20	35			251	20	39		
Rate per 1,000 total births (including stillborn)			39					42		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Prophylactic Use of Vitamin K

Q.—*In view of the importance of preventing haemorrhage in the newborn, is it worth while giving some form of naphthaquinone to mothers just prior to childbirth in order to prevent hypoprothrombinaemia?*

A.—The incidence of haemorrhage of the newly born is significantly reduced when vitamin K (menaphthone *B.P.* 2–5 mg.) is given to the mother not less than 5 hours before delivery. Although the subject is still controversial, and some authors doubt whether the gain is great enough to justify the cost, it would be reasonable to administer vitamin K intramuscularly to mothers as a routine, to reduce the risk of intracranial haemorrhage, and then to treat the baby with vitamin K, 1 mg. by mouth, on the first five days of life.

Prostigmin for Deafness

Q.—*Is prostigmin of use in the treatment of catarrhal deafness?*

A.—It seems that prostigmin temporarily increases the acuity of hearing, and having noticed this T. C. Davis and J. C. Rommel (*Arch. Otolaryngol.*, 1939, **29**, 751) tried it as a treatment for chronic deafness. The benefit they claimed has not been confirmed by other observers, though sometimes there is an apparent improvement which may be due to other simultaneous treatment. Houser, Campbell, and Schluederberg gave it a good trial with audiometric tests and dismiss the results as negligible.

Temperature-taking in Tuberculosis

Q.—*How long should the ordinary half-minute thermometer be left in the mouth in cases of pulmonary tuberculosis? I frequently observe readings as follows: at 2 minutes 97.5° F.; 5 minutes 98° F.; 10 minutes 98.8° F. What valuation should be placed on such readings?*

A.—Temperature-taking by ordinary clinical methods gives a relative rather than an actual observation. In the treatment of pulmonary tuberculosis changes in the type of chart are more important than the figure of any actual reading. Therefore to get a reliable chart for guidance (1) the same thermometer should always be used; (2) it should be kept in the mouth for the same time (for a half-minute thermometer it is immaterial whether the time chosen is 2 minutes or 5 minutes); (3) the temperature must always be taken at the same time each day and under the same conditions—preferably after one hour's rest—and no food or drink should have been taken for at least half an hour beforehand.

Treatment of Intermittent Claudication

Q.—*What treatment is recommended for intermittent claudication?*

A.—Intermittent venous occlusion, by a hydrostatic or electric pump, gives very good results in earlier cases of intermittent claudication. Intravenous plasma transfusions of 800 c.cm. at weekly intervals, for four or five times, benefit the pain, the trophic lesions, and the walking power.

INCOME TAX

Absence at Night: Cost of Meals, etc.

H. D. has been performing duties at a hospital clinic owing to the absence of the M.O. there. He has had to be away from his house one night a week with consequent expense for meals, etc. Is this expense deductible?

⁂ It depends on whether H. D.'s earnings are assessable under Schedule D or Schedule E. If, as would seem to be the case, he is in practice and has taken on this extra work as an addition to his normal work, we think the fees received may be regarded as part of the professional earnings assessable under Schedule D, and in that case the *extra* expense he is put to can be deducted for income-tax purposes. If, on the other hand, H. D. held an appointment and in effect has accepted an additional appointment, then the income from each is legally assessable separately, and the expenses in question are not strictly deductible. It might perhaps be worth while, however, even in the latter case, representing to the inspector of taxes the hardship of the case, and asking him to regard the earnings as resulting from one combined appointment, the duties being exercised in two places, and consequently necessary and allowable expenses being incurred.

Assistant Providing Car—Allowance

E. H. is employed as an assistant to a firm of doctors, and as a condition of service must supply a car. All running expenses are borne by the firm. What allowance can he claim? The car is used for professional purposes only.

⁂ He can claim the depreciation allowance—i.e., 20% of the cost price for the first year, and thereafter 20% of the value as written down by the percentage. The allowance as so calculated is then increased by one-fifth.

Service in the Forces—Expenses

"SURG. LIEUT." incurs expenses (*a*) as a member of professional associations, (*b*) for professional literature, and (*c*) for books and instruments. Is he entitled to any deduction or allowance on this account?

⁂ The question is governed by the statutory rule relating to Schedule E which provides for the deduction of expenses incurred "wholly, exclusively, and necessarily in the performance of the duties of the office." If membership of a specified association is a condition of appointment to an office, then the annual fees payable to that association are allowable; otherwise the deduction is barred by the word "necessarily." Similarly with regard to literature, instruments, etc. If an employee is required to provide them himself then the annual cost of maintenance is allowable, and not otherwise. This application of the statutory rule was supported in 1925 by the High Court in the case of Simpson *v.* Tate.

Return to Civilian Employment

"A1" joined the Forces on Jan. 7, 1941; prior to that he held an appointment at £525 per annum. He returned to civilian employment, on a salary of £600, on Jan. 15, 1943. On what basis should he be assessed?

⁂ Legally there is a definite break between civil and military appointments, and a change from one to another involves "cessation" of one employment and "commencement" of another, with the result that "A1" would become liable on the basis of his earnings of the current year for 1942–3 and 1943–4. If, however, he was assessed for the first year of his military service on the basis that his employment had been continuous and that basis operated adversely, the income-tax authorities will no doubt continue to regard the employment as continuous, notwithstanding his return to civilian employment, if that should now be favourable to him. ("A1" does not give sufficient details to show whether that is the case.)

LETTERS, NOTES, ETC.

"B.M.J." Lost through Enemy Action

Mr. CYRIL C. BARNARD (Librarian, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1), Mr. LESLIE T. MORTON (Librarian, St. Thomas's Hospital Medical School, London, S.E.1), and Mr. W. R. LE FANU (Librarian, Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.2) write: The Medical Library Association of America has given British medical libraries much help in the replacing of journals lost in transit from the U.S.A. The serious inconvenience caused by these losses in this country has been much mitigated by such help, which has been given to member and non-member libraries alike. A recent letter from the association reports the loss by enemy action of all copies of the *British Medical Journal* for March 15, 1941, and appeals for help in replacement. The above British members of the Medical Library Association would therefore be grateful if any of your readers who can spare their copies of this issue would send them to one of the addresses given. We have undertaken to forward them to medical libraries in America. So much has been done for British libraries that we welcome this opportunity to return in some measure the timely help which colleagues in America have given us.

Correction

The date on which the B.M.A. deputation met the Minister of Food to urge pasteurization of milk (*Journal*, Feb. 27, p. 265) was Feb. 18.